Spreckels SUGAR BEET Bulletin

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SPRECKELS SUGAR BEET BULLETIN

1

GROWER AND PROCESSOR

of sugar beets share alike in the fruits of research.

AGRONOMY
GENETICS
CHEMISTRY

are but a few of the many fields of research that serve the industry.
See page 2.

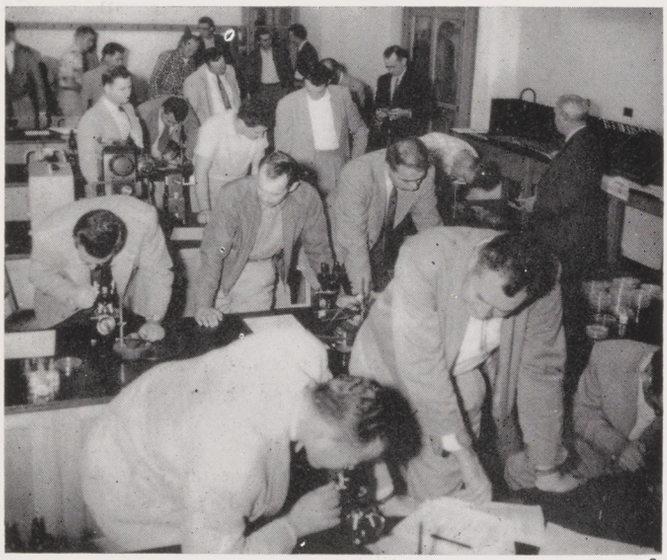
Vol. 20 JANUARY-FEBRUARY, 1956 No. 1
PUBLISHED FOR CALIFORNIA SUGAR BEET GROWERS BY THE SPRECKELS SUGAR COMPANY

MANY MEETINGS ATTENDED BY SUGAR BEET MEN

IT HAS BEEN a long hard winter, and many a sugar beet field that should have been planted is still under water. But that does not mean that sugar beet growers—in fact all of those connected with the growing and processing of sugar beets—have not been busy. Central California has been the scene of a record number of meetings attended by the sugar beet fraternity.

On November 8th, a Sprinkler Irrigation Clinic was conducted at the University of California at Davis. Valuable basic information was presented, covering the soil-water-plant complex in a thorough and understandable way.

Again, on December 8th, the Davis Campus was the scene of a conference on sugar beet production which attracted a record number of sugar company fieldmen, technicians and farm advisors from all parts of the state. Laboratory demonstrations were set up and outstanding presentations were made by Dr. L. D. Leach, Dr. Harry Lange, Dr. Ben Lownsberry, Dr. A. D. Reed and Dr. C. W. Bennett (U.S. D.A.) Subjects covered were sugar beet fungus and virus diseases, insect pests, nematode control methods, and cost accounting.



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SUGAR COMPANY Agriculturists and County Farm Advisors shared the UC plant pathology laboratory while Dr. Lysle Leach demonstrated all the principal organisms dangerous to sugar beets.

January 17th, 18th, and 19th were the dates of the Spreckels Sugar Company annual Agricultural Staff Meeting at San Francisco. Thirty five members of the Spreckels Agricultural Department met for another concentrated "short course" covering every detail of sugar beet production.

At Davis the Annual Farm Machinery Conference took place on January 26th and 27th with many presentations of interest to sugar beet growers.

The ninth general meeting of the American Society of Sugar Beet Technologists took place at the Mark Hopkins Hotel in San Francisco, January 31st to February 3rd. These meetings of the Society are the occasion for presenting the very latest in the technology of growing and processing sugar beets. The meetings are attended by representatives of the industry from all parts of the United States and from many foreign countries. Here again, members of the Spreckels Sugar Company Agricultural and Operating staffs were present to hear reports of the latest in sugar beet technology, and eleven men from both departments took part in the presentations.

The California Beet Growers Association held their annual meeting at the St. Francis Hotel in San Francisco on February 3rd. Beet growers turned out in record numbers to celebrate the 25th Anniversary of their association. In contrast to the technical information presented at the other meetings, speakers here told of the political and economic aspects of sugar beet production.

The joint meeting of the Western and California

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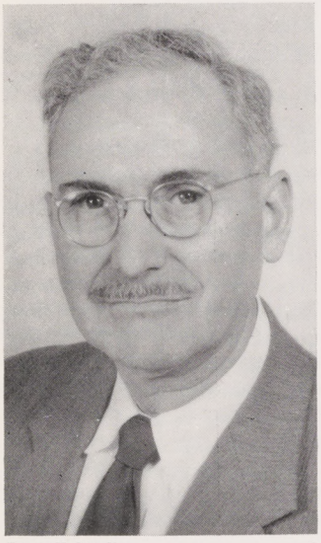
THE SPRECKELS AGRICULTURAL STAFF met for three days of technical meetings. Results of intensive studies were presented both by staff members and specialists from other Company Departments.

Weed Conferences was held at Sacramento and Davis February 15th to 17th. Many beet growers attended, and the Spreckels Sugar Company film "An Ounce of Prevention" dramatized the problem of wild beets as a weed menace. Mechanical and chemical weed control equipment was displayed.



Parnell Studio 4

AUSTIN ARMER, Agricultural Engineer, was elected President of the American Society of Sugar Beet Technologists at its ninth biennial meeting held early in February in San Francisco.

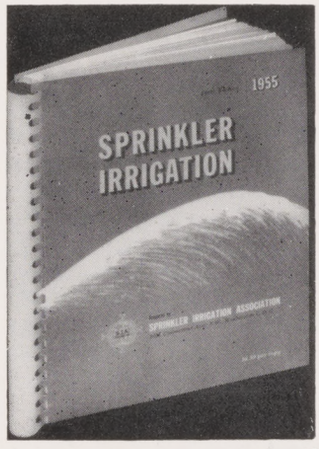
In addition to being Editor of the Spreckels Sugar Beet Bulletin, Austin Armer has long been active in agricultural research and in various industry programs aimed toward the improvement of sugar beet agriculture.

The American Society of Sugar Beet Technologists is a professional society composed of representatives from beet sugar companies, universities, government research agencies, and others from the United States, Canada, and several European nations. Its members conduct many phases of research on sugar beets.

Spreckels Sugar Company is proud that one of its agricultural staff has been selected by the Society as its President for the next two years.

G. D. MANUEL,
Vice President
Spreckels Sugar Company

SPRINKLER IRRIGATION BOOK



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SPRINKLER IRRIGATION is the title of a 466 page book recently published by Sprinkler Irrigation Association, 1028 Connecticut Ave., N.W., Washington 6, D.C. (price $6.50).

The title might well read "All that is known about irrigation," for in addition to an exhaustive coverage of sprinkler irrigation, there is abundant information on other irrigation methods and soil-water-plant relationships. The book is profusely illustrated with photographs, line drawings and charts.

Chapter headings are:

I. SPRINKLER IRRIGATION AND HIGH PRODUCING AGRICULTURE
II. GENERAL DESCRIPTION OF AGRICULTURAL SPRINKLER IRRIGATION EQUIPMENT
III. SOIL-WATER RELATIONS AND CONTROL
IV. MOISTURE REQUIREMENTS OF CROPS
V. PRINCIPLES OF SPRINKLER IRRIGATION AND RELATION TO SOIL AND WATER MANAGEMENT
VI. FIXED AND OPERATING COSTS FOR SPRINKLER IRRIGATION
VII. SPRINKLER IRRIGATION RESULTS AND PRACTICES FOR VARIOUS CROPS
VIII. WATER SUPPLY FOR SPRINKLER IRRIGATION
IX. SPRINKLER PATTERNS, SPACING, AND SELECTION CRITERIA
X. HYDRAULICS OF AGRICULTURAL SPRINKLER SYSTEMS
XI. IRRIGATION PUMPING PLANTS
XII. PLANNING FARM SPRINKLER SYSTEMS
XIII. OPERATION AND MAINTENANCE OF FARM SPRINKLER SYSTEMS
XIV. SPECIAL USES OF SPRINKLER IRRIGATION EQUIPMENT

Cristof Studio 6

NEARLY 500 members of the American Society of Sugar Beet Technologists met in San Francisco. Research and development work in Agronomy, Genetics, Plant Pathology, Agricultural Engineering, Chemistry and Physiology was reported.

LIQUID SUGAR

By WILLIAM H. OTTEY
Vice-President in Charge of Sales
Spreckels Sugar Company

MOST SUGAR used in food manufacturing is melted or liquefied in the process. This happens, for example, in the ice cream, candy, bottled beverage, and canned fruit industries. Traditionally manufacturers of these products have received their sugar in granulated form in 100-pound bags; they stored and handled it, perhaps several times, prior to utilizing it in their process. Recently liquid sugar has, to a large degree, supplanted sugar in dry form in these and other industries. New and expanding plants provide for the use of liquid sugar in their basic lay-outs.

KINDS OF LIQUID SUGAR

There are two kinds of liquid sugar. One is simple sucrose syrup. This is merely granulated sugar dissolved in purified water. This product consists of two parts sugar to one part water by weight.

The other kind of liquid sugar is invert syrup. This differs from sucrose syrup in that part of the sucrose is converted into the chemically simpler sugars dextrose and levulose. Invert syrup has certain physical properties, such as a superior ability to retain moisture, which make it preferred by a number of food processors.

ADVANTAGES OF LIQUID SUGAR

A brief glance at the advantages liquid sugar offers to industrial users reveals why this sugar product has won wide acceptance.

1. Liquid sugar eliminates time-consuming, costly manual handling of bagged sugar on the part of the user.

2. It enables the user to make more effective use of storage space, since a liquid sugar tank can be built in any shape, can be extended to any height, and can be located either inside or outside the user's factory building.

3. It can be measured more accurately, since automatic meters may be used to control its flow into the process.

4. It reduces sugar losses for the user, since spillage of liquid sugar is easier to prevent than breakage of paper bags.

5. It costs less than granulated sugar (this point is discussed more fully later in the article).

A NEW PRODUCT

These advantages would seem to suggest that liquid sugar has enjoyed many years of popularity with food manufacturers. Actually, it is only in the last decade that liquid sugar has been widely used on the Pacific Coast, although its history in this country goes back to 1925. There was good reason why its introduction and acceptance in this area were so long in coming.

The foregoing advantages, while they appear to be convincing enough today, were only "paper" advantages ten years ago. But against the possibility of realizing them, the food manufacturer had to balance the prerequisites of making a heavy investment in facilities to receive, pump, and store liquid sugar; and of introducing changes in his process, changes that had not been tested under operating conditions. The risks, financial and otherwise, acted as a strong deterrent to food manufacturers from pioneering the use of liquid sugars.

Nevertheless, the Spreckels Sugar Company was convinced that liquid sugar could bring many benefits not only to food manufacturers but also to itself and its growers in terms of increased sales volume in its home market. Therefore after a period of research and experimentation in the early 'forties, it became in 1948 the first beet processor on the Pacific Coast to offer this product. In order to win buyer acceptance, Spreckels undertook to help customers finance liquid sugar installations and to pro-

Utility Trailer Sales Photo 7

GROWING FLEETS of the most modern liquid tank trucks bear the Spreckels emblem. They serve the food manufacturers of the Pacific Coast, helping them to enjoy the economies of liquid sugar.

vide them with technical advice on the handling and usage of this product. We have continued to do so ever since.

Our faith in liquid sugar appears to have been justified, for in the past several years it has grown to be one of the most important of our various sugar products in terms of sales volume. In that time, virtually the entire northern California fruit canning trade has changed from dry-sugar to liquid-sugar usage. So have many bottlers, confectioners, and ice cream manufacturers. Other beet processors have followed our lead until all but one of them on the Pacific Coast offer liquid sugar today.

HOW LIQUID SUGAR IS PRICED

The cane sugar refiners on the Atlantic Coast who introduced liquid sugar in this country were able to offer it at a price under granulated sugar in 100 pound bags because they did not have to bring sugar to a dry granulated state before liquefying it and because they did not have to buy bags for their liquid sugar production. These cane refiners, thus, were passing on to their customers the savings they realized in the production and sale of liquid sugar. This, of course, stimulated interest in its use.

As liquid sugar production spread to other parts of the country, the traditional price differential for this product was adopted by cane refiners serving these new areas. For competitive reasons, therefore, Spreckels and other beet processors who have gone into the liquid sugar business have sold it for slightly less than the price of an equivalent amount of granulated sugar in bags, even though beet processors cannot realize all the economies in the manufacture and sale of liquid sugar that cane refiners enjoy. Today on the Pacific Coast the f.o.b. San Francisco price of 100 pounds of liquid sugar is 10 cents less than the corresponding price of 100 pounds of granulated sugar in a bag.

CONCLUSION

The growth of the market for beet liquid sugar has resulted in a high degree of market stability in a large segment of industrial sugar usage on the Coast. The substantial sales volume has more than justified the cost and effort which went into it. Without this participation over the past ten years, an enormous and valuable home market could have been entirely lost to beet sugar, to the detriment of the growers of sugar beets. Those processors, of which Spreckels was first, that met the cane challenge have insured the protection of their growers' markets for the finished product, and assured the growers' participation in the further growth of these markets which is universally forecast.

Expanded modern plant facilities for the production and storage of Spreckels' liquid sugar, growing fleets of the most modern trucks bearing the Spreckels' emblem, and annual increases in sales volume of Spreckels sugar in liquid form testify to the soundness of the judgment which led our Company to take the lead in supplying liquid beet sugar to the food manufacturers of the Pacific Coast.

KERN CO. "35 TON HONOR ROLL"

By R. BRUCE DUNCAN
Assistant Agricultural Superintendent
Spreckels Sugar Company

DURING PAST seasons, in the Kern county vicinity, the emphasis has been on an early sugar beet harvest. Early harvest in this case has usually meant a period beginning approximately in mid July and terminating early in September.

Sugar beets were considered ready for harvest when there was no more water available for them, and little thought was given to what effect a longer growing season might have had on the crop.

FRED FRICK was top man, with 46.2 tons per acre.

It was not until the season of 1954, when government-imposed restrictions on cotton planting resulted in such drastic reduction in acreage, that the sugar beet crop was considered for a later harvest.

Early during the 1955 crop, some growers expressed a desire to be allowed to carry somewhat greater acreages into November for a delayed harvest. Such a plan was approved by the company and a total of 435 acres was so treated. Company Agronomist Lauren Burtch conducted a very precise sampling program in order to chart gains or losses in tonnage and sugar. The results of the average of all fields sampled follow:

FIRST SAMPLE TAKEN 9/2/55		LAST SAMPLE TAKEN 11/2/55	
	Average Gain, All Fields	Greatest Gain	Least Gain
Sugar	.88%	1.12%	.70%
Tonnage	10.15 tons per acre	15.42 tons per acre	5.46 tons per acre

The average clean beet yield for the entire 435 acres was 36.4 tons per acre. The highest individual yield was grown by Mr. Fred Frick of Arvin. His 30 acres yielded 46.2 tons per acre, clean beets.

Kern County's "35 ton Honor Roll" follows:

GROWER	Tons per Acre	Acres Contracted
L. W. Frick & Sons	46.22	30
Triple J Farms	42.10	124
Barnard Brothers	41.18	59
W. J. Greenlee & Son	39.75	24
Maze & Lewis	39.56	15
Sherman A. Cave	37.99	3
J. Howard Porter	35.86	65
H. B. Farms	35.59	50
L. C. Kreim	35.44	10
Floyd Hudiburg	35.21	14

This Is a Wild Beet

This Is a Wild Beet

This Is a Wild Beet

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This Is a Wild Beet

10

LEARN TO IDENTIFY WILD BEETS

These menacing weeds appear in numberless disguises. Individual plants may differ in appearance even more than their domestic cousins; sugar beets, red garden beets and Swiss chard.

Whatever their appearance, they have one thing in common—a tremendous reproductive vigor and a will to grow in competition with all field crop plants.

Make it your business to recognize these weeds ——

AND THEN DESTROY THEM

These Are Wild Beets

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These Are Wild Beets

This Is a Wild Beet

This Is a Wild Beet

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CONTROLLING WILD BEETS — SOME SUGGESTIONS

By AUSTIN ARMER

Agricultural Engineer, Spreckels Sugar Company

IN THE PAST two issues of Spreckels Sugar Beet Bulletin there have been articles calling attention to the problem of wild beets, and what the state and county agencies are doing to control them. It seems appropriate at this time to say a few words on what individual farmers, and specifically beet growers, can do to control wild beets.

I had a chat with Bill Harvey, Extension Weed Specialist, University of California, and Bill had some of his usual, practical, and salty remarks to make on the subject of wild beets.

"Wild beets are not hard to control" said Bill. "It's just a matter of doing something about it. Most of our weed control problems center around apathy, and the hardest thing to do in any weed control problem is to get the landowners to do something about the weed conditions."

I asked Bill if there were any specific problems connected with the eradication of wild beets and his answer was "No—Wild beets are very easy to kill with general contact herbicides such as oil emulsions fortified with the dinitro compounds. When wild beets occur in alfalfa they are particularly easy to control by chemical methods because it is becoming more or less customary to use a general contact weed spray during the dormant season in alfalfa hay fields. An application of fortified oil over an alfalfa field containing wild beets or any other weeds is a great benefit to the following cutting of alfalfa hay."

Bill gave me a copy of a California Extension Service leaflet entitled "Weed Control in Perennial Legumes" by Luther G. Jones and William A. Harvey. This is a very useful collection of information for the alfalfa, clover, or legume seed grower.

"Don't forget how valuable the man with the hoe is," said Bill. "Wild beets frequently occur in small isolated patches, and one man with a hoe can usu-

(Concluded on Page 8)

A PLEA FOR GOOD HARVEST MANAGEMENT

By D. R. HEFNER

Field Superintendent, Spreckels Sugar Company

MANY TIMES in the past we have urged growers to do a better job of managing harvest operations and thereby earn more profit. It may seem the wrong season for admonitions of this sort, but spring harvest is actually just around the corner and it makes good sense to plan an efficient harvest.

It is our observation that there are many instances where one to two additional tons of beets per acre could have been harvested had the job been done properly. Recovery, however, is not the only method of earning that extra dividend. Serious losses occur if the harvest crew spent much of their time fixing breakdowns which should have been headed off before the harvest began. It might be well to dig through back numbers of Sugar Beet Bulletins and read "Why Not Harvest All Your Beets" in the July-August, 1950 issue; "Down Time" in the January-February, 1955 issue, and "Good Harvest Management Pays" in the July-August, 1955 issue.

To the grower interested in seeing all he grows go to market, it is his responsibility to see that the harvester that digs his beets, whether his own or commercially operated, does the best possible job. The grower cannot delegate this responsibility to anyone except the most unusual helper without it costing heavily. There is more at stake in this operation than any other connected with the crop. Perhaps the following points will act as a guide:

1. If you own a machine see that it is fully repaired because "Down Time" is ranch enemy number one.
2. Watch the topping job! Those crowns should be cut off squarely, and not on an angle with part of the crop with each crown. Above all, insist that NO leaves or stems remain.
3. Watch the field behind the machine for missed beets and watch the wheel for those telltale white spots of broken beets. Insist on adjust-

(Concluded on Page 8)

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BOTH OF these fields near Dixon were harvested at the same time by Marbeet Midget harvesters. The difference in recovery (emphasized by the beating rains that followed harvest) can be charged directly to harvest management practices.

DRIED BEET PULP PRODUCTION AT WOODLAND FACTORY EXPANDED

THE INCREASING demand for Dried Beet Pulp combined with the limited production facilities throughout the industry has brought to light the need for expanded production of this important feed ingredient.

Spreckels Sugar Company is pleased to announce that, to meet this need and to supply its many beet pulp customers, drying facilities at its Woodland Factory are being increased to assure the availability of more Dried Beet Pulp in 1956.

WILD BEETS

(Continued from Page 7)

ally do more than a man with a spray rig under such circumstances. However, be mighty sure that every wild beet plant that is chopped out is removed and burned. A seeding wild beet chopped down but left where it falls is a treatment worse than nothing —it merely helps to increase the population of wild beets. So don't forget—take those wild beets out of the field and burn them."

My personal observation on wild beets in areas where dairy or beef cattle are fed on permanent pasture is that wild beets never seem to be present in pasture areas. This gives a clue—maybe a little bit of temporary fencing would permit some dairy or beef cattle to clean up some uncultivated land with benefit to themselves and to the community as well. Sheep are particularly fond of all varieties of beets including wild beets.

I must conclude however, that Bill Harvey's opening remark gives the real clue to controlling wild beets—"Do something about it."

HARVEST MANAGEMENT

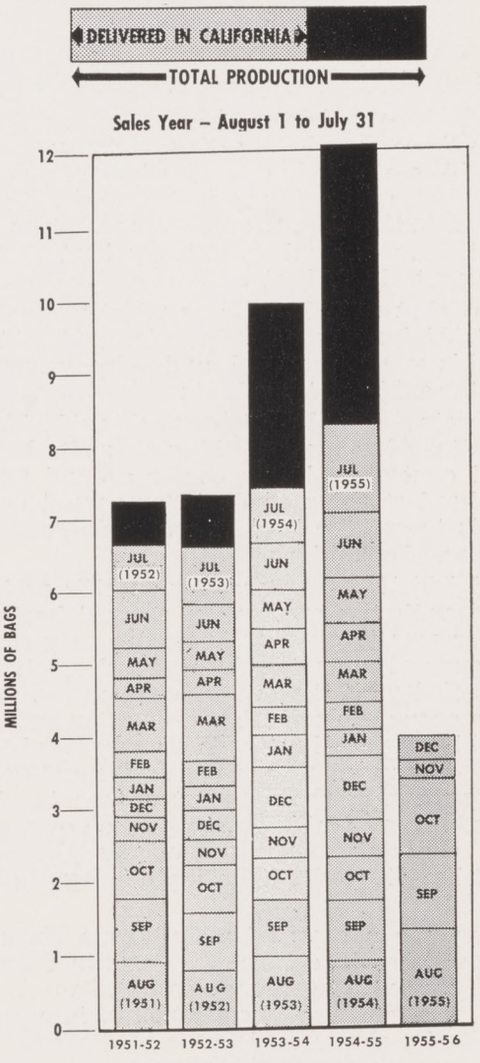
(Continued from Page 7)

ments to eliminate the poor job.

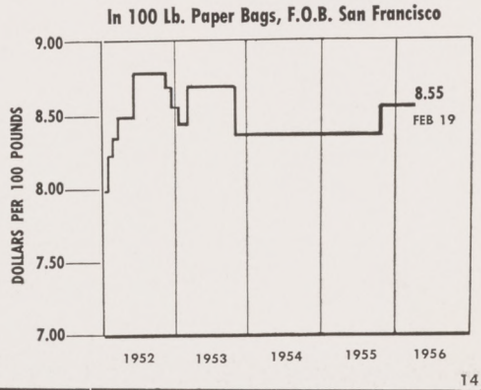
4. Do not overload trucks. Beets that spill off the trucks add up to a serious loss.
5. Instruct the operator as to what kind of job you expect and the amount of tolerance he can have. Too often the operator is left to his own devices and doesn't know what you consider a good job.

It is the nature of people in general to do no more than is required of them. Hence it is important, after the operator has been informed of what is expected of him, to continue supervision, and to follow through until the end of harvest. To start off on the right foot is not enough. There is a big reward for consistent and continuing attention to harvester performance until the last row is dug.

PRODUCTION AND DELIVERIES OF BEET SUGAR IN CALIFORNIA



QUOTED PRICE OF BEET GRANULATED SUGAR



The SPRECKELS SUGAR BEET BULLETIN is issued bi-monthly by the Agricultural Department of the Spreckels Sugar Company as a service to its growers.
Mention of specific methods, devices and implements does not constitute an endorsement by the Company.
All photographs by the editor unless otherwise indicated.
AUSTIN ARMER, Editor SPRECKELS SUGAR COMPANY WOODLAND, CALIFORNIA

SPRECKELS SUGAR BEET BULLETIN

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PRECIOUS PACKAGE

Utilizing beet tops is proving to be profitable to many Spreckels beet Growers.

BALING
ENSILING
GREEN FEEDING

are some of the ways that sugar beet tops can be made to yield valuable profits. See page 10.

Vol. 20 MARCH-APRIL, 1956 No. 2
PUBLISHED FOR CALIFORNIA SUGAR BEET GROWERS BY THE SPRECKELS SUGAR COMPANY

SUGAR BEET TOP RECOVERY

By J. B. LARSEN
Agricultural Superintendent
Spreckels Sugar Company

THE FEEDING value of sugar beet tops has long been recognized. In European countries, the tops are as important a product as the sugar beet roots.

Previous to this year, very few growers realized any return from sugar beet tops in the Salinas District, unless they pastured them. Growers and landowners who sold their tops for pasturing realized a profit of from $6.00 to $10.00 per acre. This is a very low return for such a valuable feed product. The University of California Agriculture Extension Service, in comparing the value of beet tops to alfalfa hay, claim the tops from a 20 ton-per-acre yield of sugar beets is equivalent to 3.3 tons of alfalfa hay containing 10 percent moisture.

In the past year there has been displayed in the Salinas Valley far more interest in baling beet tops than in any previous season. In this area, during 1955, 531 acres of beet tops were baled. The average yield of the baled tops was approximately 3 tons per acre. The range was from 2 tons to over 5 tons per acre. Approximately 15 Spreckels Sugar Company growers baled tops from part or all of their acreage. Some of our growers did their own baling; others hired custom balers. We have had three custom balers operating in Salinas Valley this past season. These operators have received $5.00 to $6.00 per ton for baling, or have been willing to prepare the beet tops and bale them for a share of the product. Some of our growers are feeding their own baled tops, others have sold them. Prices for baled tops have been approximately $5.00 per ton less than alfalfa hay. Growers who have had baled tops for sale received from $20.00 to $22.50 per ton.

An example of the average revenue derived from one acre of baled tops in Salinas Valley is as follows:

	Cost per acre	Value per acre
Pre-baling costs	$ 6.00	
Baling 3 tons at $5.50	$16.50	
Total cost per acre	$22.50	
3 tons per acre at $21.00 per ton		$63.00
Net profit per acre		41.50

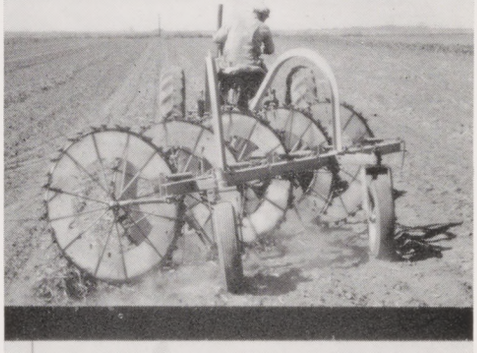
Demand for baled beet tops, so far has been greater than the supply. Customers who have bought baled tops once, called back for more.

SUGGESTIONS FOR SUCCESSFUL BALING

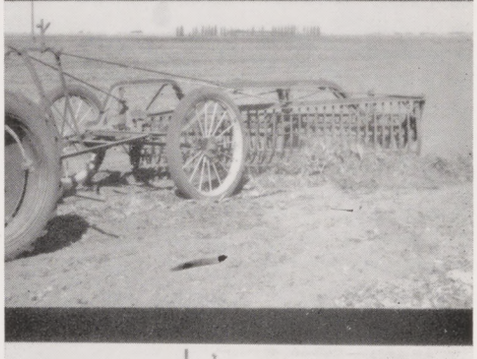
1. Roll. Some growers roll the ground before turning the windrows, some operators also roll the tops to eliminate more of the dirt.
2. Windrow—with a sulky or wheel-type rake.
3. Fluff windrows, or turn with a side delivery rake.
4. Keep windrows small (4 beet beds or 8 rows).
5. Bale when there is still enough moisture to prevent the shattering of the leaves.
6. Pack bales tight.
7. Dry and cure from 10 days to a month, depending on the time of harvest and the local weather.

ROLL directly after harvesting. A toothed ring roller will break up clods when run right over the tops.

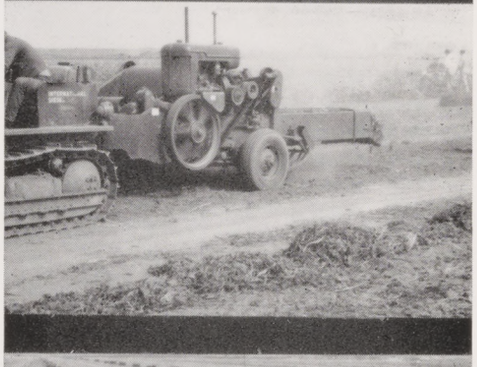
RAKE with a wheel type or sulky rake into an 8-row (4 bed) windrow. Let cure partly, and then—



TURN the windrow over with a reel type side delivery rake, to fluff and aerate the windrow



BALE with a 2-string baler (if tops will be fed locally or a 2-wire baler if tops are to be shipped)



CASH in on the profits —whether the baled tops are fed on the ranch or sold for a tidy cash price.

SOME CASE HISTORIES

ELDON PURA, Greenfield, has successfully baled beet tops for three years. This year he baled the tops from 20 acres of beets.

Operation	Appr. Cost Per Acre
Roll tops after harvest (4 acres per hour)	$0.50
Rake (sulky rake, gather windrows 1 acre per hour)	2.00
Disk & roll (between windrows) one operation	.75
Rake (side delivery Case tractor) turn windrows	.75
Disk & roll (original area of windrow)	.75
Rake (turn windrows)	.75
	$5.50

	Per Ton
Bale (International Mod. 50 A.W.)	
Wire	$1.00
Labor ($2.50 per hour)	.85
Fuel—Tractor ($1.00 per acre) —Baler ($1.00 per acre)	.70
Pick up and stack (roadside)	2.00
	$4.55
3½ tons per acre x $4.55 per ton	15.93
Total cost per acre	21.43
Gross returns (3½ tons at $21.25)	74.38
Net Profit per acre	$52.95

Eldon Pura feeds most of his baled tops. For the ones he sold he received from $20.00 to $22.50 per ton. This would give him a net profit of $52.95, using an average price of $21.25 per ton.

BASSI BROS., Gonzales, baled the tops from 25 acres.

Operation	Appr. Cost Per Acre
Roll tops after harvest (7-10 days)	$0.85
Rake (two windrows together)	1.75
Turn windrows (3 times at $1.35)	4.05
	$6.65
Custom Bale (5 tons per acre at $5.00 per ton)	25.00
Total cost per acre	$31.65
Value—5 tons at $20.00 per ton	100.00
Total cost	31.65
Net Profit per acre	$68.35

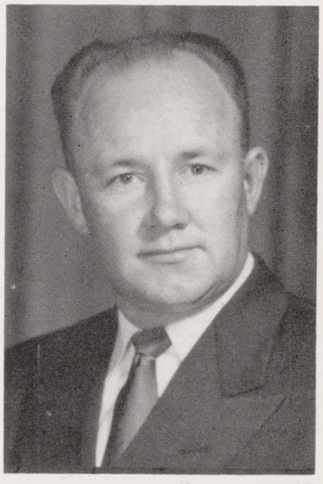
Bassi Bros. sold part of their tops in the field for $20.00 per ton, and fed the balance to their own dairy herd.

JOHN GARDONI, Soledad, baled the tops from 30 acres of sugar beets.

The feed value of the tops was equal to alfalfa hay, according to Gardoni. They were fed to dry cows and young heifers, which preferred the tops to alfalfa hay.

SUGAR BEET SPECIALIST JOINS AGRICULTURAL STAFF

By DR. RUSSEL T. JOHNSON
Plant Breeder
Spreckels Sugar Company



IN JANUARY of this year the Agricultural Department of Spreckels Sugar Company acquired a third member to work on agricultural research. He is Mr. George W. Wheatley and has had considerable experience with sugar beets, both from the practical aspect of growing them, and also the technical aspect of doing sugar beet research work.

George is a native of Utah where he operated a farm and grew sugar beets for a few years, both before and after his Army duty in World War II. Later he attended Utah State Agricultural College where he received his B.S. and M.S. degrees in the Department of Soils and Agronomy. After completion of his studies at college he accepted a position with the U. S. Department of Agriculture, Agricultural Research Service and was stationed at the U. S. Agricultural Research Station at Salinas, California to conduct studies on sugar beet nematode and the possibilities of developing resistance to it.

In our own program, as an increasing number of potentially desirable strains of sugar beets for the different conditions under which sugar beets are grown becomes available, the job of evaluation and maintaining this material becomes ever greater. This is particularly true with the advent of hybrid varieties. It is for this job, then, that the new position has been created. He will have charge of maintaining the many seed strains necessary for the development of new varieties for all of our areas in addition to conducting variety trials for the evaluation of new strains in District I.

Operation	Appr. Cost Per Acre
Rake (to fluff machine windrows)	$0.80
Disk & roll	.80
Rake (to turn windrows)	.80
Rake (to fluff tops for baler)	.80
	$3.20
Custom Bale (International) at $5.00 per ton	12.50
Total cost per acre	$15.70
Net cost per ton	$ 6.28

THE CALIFORNIA WATER PLAN

By JOHN M. HALEY*

CONTINUOUSLY—ever since the birth of the State more than 100 years ago—the people of California have been faced with serious water problems. While these problems are not new, never before have they assumed such proportions nor been of such vital significance as they are today. This results from the consequences of a long period during which construction of water conservation works has lagged. To supply its necessary water California is relying for the most part on works which were designed to meet the needs of 20 to 30 years ago. This article will briefly define the major problems of water supply development in California and describe preliminary results of planning upon the part of the State to meet those problems.

The State Water Resources Board, created in 1945 to advise the California Legislature in matters of water, was authorized by the Legislature in 1947 to conduct an investigation of the water resources of California. The program adopted is a long-range plan for comprehensive development of the water resources of the entire State, and has been designated "The California Water Plan."

The first phase of the program comprised an inventory of available data on sources, quantities, and characteristics of water in California. The results are available in State Water Resources Board Bulletin No. 1, "Water Resources of California," published in 1951. This bulletin contains a concise compilation of data on precipitation, runoff of streams, flood flows and frequencies, and quality of water throughout the State.

The second phase dealt with present and ultimate requirements for water. The associated report, Bulletin No. 2, "Water Utilization and Requirements of California," is printed, and is available from the State Printer. This bulletin includes determinations of the present use of water throughout the State for all consumptive purposes, and presents forecasts of ultimate water requirements, based in general on the capabilities of the land to support further development.

The third and final phase of this initial planning program has been proceeding concurrently with the foregoing studies, and will be completed this year. This constitutes the surveys and studies for The California Water Plan, the results of which will be presented in Bulletin No. 3, on or about June 30, 1956.

PHYSICAL PROBLEMS OF WATER SUPPLY DEVELOPMENT

Correlation of the data from Bulletins Nos. 1 and 2, relating to the nature, occurrence, and amounts of water resources and requirements serve to define the physical problems of water supply development in California.

* Principal Hydraulic Engineer, Division of Water Resources, State of California.
This is the first installment of a paper presented at the Farm and Home Conference at the University of California, Davis, California, January 26, 1956.

In order to facilitate the state-wide studies, the land area of California was divided into seven major hydrographic areas (see map on opposite page).

The climate of California is characterized by unusually wide variations and abrupt discontinuities. Precipitation mainly occurs during winter months, as rain at lower elevations and as snow in the higher mountain ranges. Seasonal precipitation at sea level on the coast decreases from a depth of about 40 inches in the north to about 10 inches in the south. In the floor of the great Central Valley it varies from about 38 inches at Redding to a little over 6 inches at Bakersfield. On the heights of the Sierra Nevada and the mountains of the north, snowfall reaches depths exceeding 100 inches. In the desert areas of the southeast the average seasonal depth is less than four inches.

The outstanding characteristics of runoff in California is its geographic maldistribution. The major sources of water are in the northern part of the State where they waste into the ocean unused. On the other hand, the great productive land areas are in the central and southern regions where water supplies are insufficient. Complicating the picture, mountain ranges intervene.

The estimated mean seasonal natural runoff of all California streams is about 71 million acre-feet. The greatest contributions come from streams of the North Coastal Area, which furnish about 41 percent of the total for the State, and from streams of the Sacramento River Basin in The Central Valley Area, which furnish about 32 percent. Most of the remainder of the natural water supplies, some 16 percent of the State's total, is in the San Joaquin Valley of the Central Valley Area; while the San Francisco Bay, Central and South Coastal Areas, and the Lahontan and Colorado Desert Areas receive only relatively insignificant portions of the vital water resource.

Another outstanding characteristic of stream flow in California is the sporadic nature of its occurrence. In general, runoff closely follows the monthly pattern of precipitation, with by far the greatest portion occurring during winter months. Fortunately, an important part of the runoff in most inland mountain streams is delayed until the late spring and early summer snowmelt period. This natural regulation is insufficient, however, to provide for the large agricultural demands of summer and fall.

In addition to the characteristic variation in natural water supply within the year, California is subject to extended wet and dry periods.

The resulting periodic droughts, as well as the normal monthly variations in occurrence of water supplies, dictate the provision of extremely large amounts of reservoir storage capacity for necessary seasonal and cyclic regulation.

Extensive ground water basins provide natural regulation for more than half of the water presently used in California. The vast available underground storage capacity, estimated to be over 130 million acre-feet within 200 feet of the ground surface in

CALIFORNIA produces an excess of water in its mountain and North Coastal areas, but lacks water in its urban and potential agricultural areas.

The California Water Plan envisions a redistribution of this water to meet the needs of growing population.

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the Central Valley alone, constitutes one of the most valuable natural resources of the State. When operated coordinately with existing surface reservoirs and those feasible of future construction, ground water basins will provide regulation for sufficient water to meet the forecast ultimate requirements. However, draft on many of these basins now exceeds replenishment, and in some instances the

(Continued on Page 15)

SPRECKELS' NEW SUGAR PACKAGES AND NEW SUGAR PRODUCTS

By WILLIAM H. OTTEY
Vice President in Charge of Sales
Spreckels Sugar Company

IT IS A PLEASURE to tell you about our new sugar packages and our new sugar products. We are very proud of them, and hope you, as Spreckels growers, will be too.

NEW PACKAGES

With self-service rapidly becoming the dominant method of food buying, the attractiveness of a package is, in terms of sales success, a close second to the reliability of the product it contains. It was with that thought in mind that the Spreckels management last year decided to discover what improvements could be made in its consumer-sugar packages to win greater acceptance for these products.

The first step was to find the top people in the industrial design field. We discovered that no industrial-design firm in the country has a better reputation than Walter Landor and Associates, a San Francisco organization with offices just four blocks from our own!

Mr. Landor's group and our own concluded that four objectives are of prime importance in sugar packaging:

1. To have a package with a strong, visual personality, forceful enough to enable the consumer to recognize the brand at first glance, without having to read the name.
2. To use package areas not required for brand identification to stimulate consumer interest and to build good will for the brand by being helpful more than promotional.
3. To provide the package with consumer appeal that would increase movement.
4. To have a package that looks like a sugar package.

Throughout their work, it was necessary for Mr. Landor's designers to keep in mind not only the foregoing objectives, but also the following:

To what extent could the new packages deviate from the old ones in design? Spreckels had built up

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CHARLTON F. JOHNSON, Sales Manager, William H. Ottey, Vice President in charge of Sales, and Guy D. Manuel, Vice President and General Agriculturalist, view the new Spreckels Sugar Packages.

a certain loyalty to its old package, and that loyalty might be disrupted if the new packages represented too great a departure from the old ones.

How would the new packages look next to competitors' packages? This comparison would be made thousands of times a day by shoppers as they approached the sugar shelves of western grocery stores and supermarkets.

Since a family of packages, representing granulated, powered, brown, and superfine sugars, was involved, there had to be a strong family resemblance between these packages.

After an eight-month design period, the new packages are ready for introduction to the public. As of today we have new packages for our one-pound cartons of powdered, light and dark brown and superfine sugars and our five-pound pocket of granulated. The new packages will make their appearance in stores and markets following the sale of existing stocks of the old packages. In due course the rest of our line of sugars, both consumer and industrial, will benefit from new package design.

As you look at our new packages, both in the accompanying pictures and on your grocer's sugar shelf, you will notice the following points:

(Continued on Page 16)

NEW OLD NEW OLD NEW OLD NEW OLD

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THE NEW packages are larger than the old ones; are designed for functional and eye-catching sales appeal.

LOOK! NEW SUGARS!

Smoother frostings faster!

Now Spreckels Powdered Sugar is extra-fluffy, 50% finer! A change for the better that means better frostings for you. It blends so smoothly, so completely, you get the finest-textured, creamiest-tasting frostings ever . . . in less time! Buy a package at your grocer's today!

A brand-new instant sugar, too!

Tinier-than-ever crystals make new Spreckels instant Superfine the fastest-dissolving sugar you've ever used! Perfect for iced drinks, fresh fruits and cereals!

Bright, new packages in kitchen-lovely colors!

Get the complete line of Spreckels Sugars in these new, easy-to-use packages. Also look for Spreckels Granulated Sugar in the economy 2-lb., 5-lb. and 10-lb. bags.

Westerners are sweet on Spreckels Sugar

WATER PLAN

(Continued from Page 13)

overdraft is of such magnitude as to threaten irreparable damage to these valuable storage reservoirs.

A multiplicity of other physical problems is involved in the development and use of the waters of California for beneficial purposes. These include repulsion of sea water from underground basins, drainage of high-water-table lands, maintenance of salt balance on irrigated lands, and protection and maintenance of the quality of fresh waters. Flood control is also important. The sporadic nature of rainfall, together with accelerated snowmelt caused by unseasonably warm springs frequently create serious flood problems.

CALIFORNIA'S GROWING WATER NEEDS

Forecasts, based generally on the capacity of the land to support a balanced economy, indicate that California's present population of about 13 million will increase to more than 40 million under conditions of complete development.

The total present use of water in California is about 21,400,000 acre-feet per season. It is forecast that this will ultimately increase nearly 2½ times, to some 50,500,000 acre-feet per season. It is interesting to contrast the geographical breakdown of this ultimate forecast with the runoff estimates previously presented. The Central Valley Area, with 48 percent of the runoff, should ultimately require almost exactly 48 percent of the developed water supplies. However, more than two-thirds of this ultimate use should be in the water-deficient San Joaquin Valley. The North Coastal Area with its great natural water supply, 41 percent of the State's total, should ultimately require only about 4 percent of the water consumptively used throughout California. It is forecast that the San Francisco Bay Area and the South Coastal Area, with their tremendous metropolitan developments, will together need about 17 percent of the ultimate developed water supply. Yet between them they enjoy only 3.5 percent of the natural water supply. The extremely arid Lahontan and Colorado Desert Areas, with less than 5 percent of the runoff of California, have the potential to use 26 percent of the ultimate developed water supply of the State.

The data developed in State Water Resources Board Bulletin Nos. 1 and 2 demonstrate the basic geographical water problem of California, and also indicate the solution to that problem. From the abundant water supplies of the North Coastal Area and the Sacramento River Basin, an average of approximately 23 million acre-feet of water per season will ultimately have to be developed and exported to the remaining inherently water-deficient areas of the State. These exports will be surplus waters, over and above the waters needed in the North Coastal Area and the Sacramento River Basin for local use. With the full practical development of local water resources in all areas of the state for local use, and with the water available under California's rights in and to the waters of the Colorado River, these exports from the north will satisfy the probable ultimate requirements for water in all parts of the State.

THE CALIFORNIA WATER PLAN

Bulletin No. 3 of the State Water Resources Board, to be published in 1956, will describe a major system of works to conserve and export surplus waters from the North Coastal Area and the Sacramento River Basin, and to transport these waters to areas of deficiency elsewhere in the State, in sufficient amounts to meet the forecast ultimate requirements. The operation of these export-import facilities, collectively termed "The California Aqueduct System," will be outlined in the bulletin, and their achievements and costs estimated. Bulletin No. 3 will similarily treat local water resource developments in each of the major hydrographic areas of California. The California Water Plan, comprising both The California Aqueduct System and the more local works, will give consideration to water conservation, control, protection, and use for agricultural, domestic, and industrial purposes, hydroelectric power development, flood and salinity control, navigation, and fish, wildlife, and recreation. It will contemplate the conjunctive operation of surface and ground water reservoirs, which operation will be essential to regulation of the large amounts of water ultimately to be involved.

The following concepts have entered into the planning studies, and, for proper evaluation of the results, should be borne in mind:

1. The California Water Plan is conceived as an ultimate plan, one that will meet the requirements for water at some unspecified but distant time in the future when the land and other resources of the State have essentially reached a state of complete development.

2. The plan is designed to provide for future beneficial uses of water by individuals and agencies in all parts of the State, and should eliminate sectional concern as to future availability of necessary water supplies.

3. The California Water Plan is a flexible pattern into which future definite projects may be integrated in an orderly fashion, with due consideration to varying interests.

4. The plan is designed to be susceptible of orderly development by logical progressive stages as the growing demands and requirements of the State may dictate.

5. The California Water Plan is designed to include or supplement, rather than to supersede, existing water resources development works. It also incorporates certain of the planned works now proposed or authorized by public and private agencies and individuals. Of special significance in this respect is the Feather River Project, which is proposed as the unit for initial construction under The California Water Plan.

NEW SUGARS

(Continued from Page 14)

The one-pound cartons of brown, superfine and powdered sugar are bigger than the customary size, and what's equally important, they look bigger.

The recipes and information about sugar in the diet which appear on the packages serve as independent themes that should win extra consumer support for our brand.

Care has been taken to make each face of the new packages easily identifiable. The large "S-S," prominently visible from a distance of 10 to 15 feet, will quickly identify the package as Spreckels Sugar.

NEW POWDERED AND SUPERFINE SUGARS

Along with the new packages, Spreckels is introducing two new Sugars: Powdered and Superfine.

Our new Powdered Sugar is more finely ground than powdered sugar has been in the past. This feature provides two important advantages:

1. The smaller size of each particle of sugar permits much more rapid and easy creaming when making icing or frosting.
2. The texture of icings and frostings made with this sugar is particularly fluffy and smooth, with none of the grittiness that results from sugar of larger grain size.

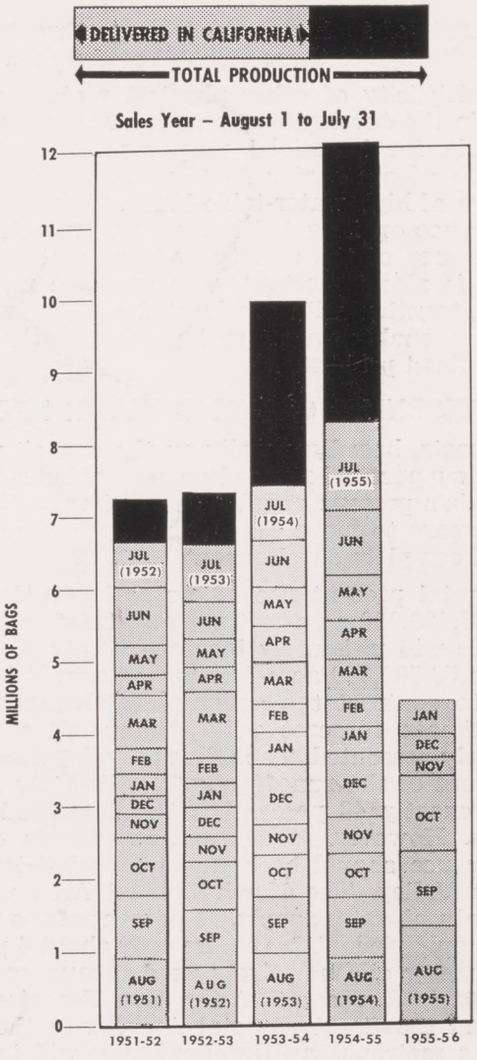
Spreckels' new Superfine Sugar too is characterized by a smaller and more uniform grain size than previous superfine sugars. This means that the new Superfine will dissolve more rapidly in liquids. Moreover the new Superfine product, without sifting, will blend more readily with batter, yielding home-baked goods of lighter and smoother consistency.

The development of our new packages and new sugar products has required considerable time and effort. But we think that both the time and effort will prove to have been well spent. We now have additional sales tools to capture a larger share of the consumer sugar market. That such a goal is desirable, both from your standpoint and ours, hardly needs to be mentioned.

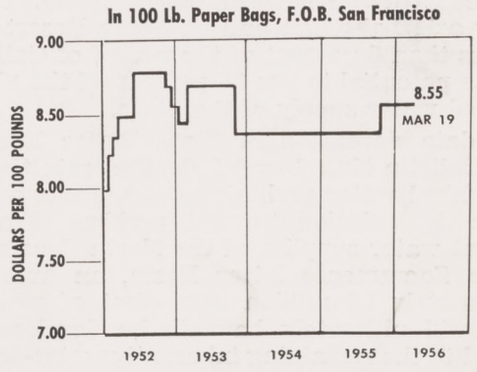
Of course the new packages and new sugars are not going to sell themselves. Recognizing this, we have planned an intensive advertising and merchandising program to promote them, which includes, among other things, full-color ads in Sunset, the leading regional magazine published in the West (see enclosure). Our employees are giving the sales department strong support by seeing to it that their grocers constantly have a supply of Spreckels Sugar.

But this sales campaign would be incomplete without the help of our growers. The introduction of our new packages and new products would seem to be a good time to make sure your grocer is continuing to stock Spreckels Sugar, making it available in the communities which produced it.

PRODUCTION AND DELIVERIES OF BEET SUGAR IN CALIFORNIA



QUOTED PRICE OF BEET GRANULATED SUGAR



The SPRECKELS SUGAR BEET BULLETIN is issued bi-monthly by the Agricultural Department of the Spreckels Sugar Company as a service to its growers.
Mention of specific methods, devices and implements does not constitute an endorsement by the Company.
All photographs by the editor unless otherwise indicated.
AUSTIN ARMER, Editor SPRECKELS SUGAR COMPANY WOODLAND, CALIFORNIA

SPRECKELS SUGAR BEET BULLETIN

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CLOSE THE GAP

between beet tops in the beet field and feedstuffs in the feedlot.

SAVE

BEET

TOPS

and profit from the "Second Crop" in the beet field. See page 22

Vol. 20 MAY-JUNE, 1956 No. 3

PUBLISHED FOR CALIFORNIA SUGAR BEET GROWERS BY THE SPRECKELS SUGAR COMPANY

THE CALIFORNIA WATER PLAN

By JOHN M. HALEY*

IT HAS been authoritatively estimated that in only 9 years, by 1965, the population of California will have increased to about 16,500,000. If this not unreasonable forecast proves accurate, and assuming no substantial water supply development in the interim, the growth of urban water demands and accompanying agricultural water requirements by 1965 will increase seasonal water shortage in California to more than 11,000,000 acre-feet, nearly three times the anticipated yield of the Feather River Project.

In other words, the large water supply to be gained from the Feather River Project is fully needed today. Furthermore, unless we assume stagnation of the population and economy of California at present levels, one or more additional projects of comparable size should be rapidly planned for possible construction in the near future. The responsibility for immediate initiation of such planning is particularly acute because lengthy periods of financing and construction will be involved before water from new large-scale projects can possibly be made available in areas of need.

THE FEATHER RIVER PROJECT

Construction of the Feather River Project by the State of California, acting through Water Project Authority, was authorized by the Legislature by Chapter 1441, Statutes of 1951. The Feather River Project is the first state-wide project ever proposed for California, and is designed to deliver water outside of the Sacramento and San Joaquin Valleys, as was never envisioned in the earlier Central Valley Project. All future large-scale transfers of water will, of necessity, supplement or parallel the principle of this project.

Primarily, the new water supply for the Feather River Project will be provided by a dam and reservoir on the Feather River about five miles above Oroville in the Sacramento Valley. The dam will be the largest in the United States. It will reach some 710 feet above stream bed and be 5,040 feet long. The reservoir, of 3,500,000 acre-foot storage capacity, when operated in conjunction with pumping lifts in the Sacramento-San Joaquin Delta and the San Luis Reservoir in the San Joaquin Valley, will make available some 4,000,000 acre-feet of water seasonally for export to the Santa Clara Valley, the west side of the San Joaquin Valley, and south of the Tehachapis to Southern California, in addition to 970,000 acre-feet of water each season dedicated to the Feather River Service Area in the Sacramnto Valley. Falling water at the dam will be used to generate about one and three-quarter billion kilowatt-hours of electric energy annually.

The present Feather and Sacramento River stream systems will be used as channels for delivering water from Oroville Reservoir to the Delta. There, the Feather River water and other excess flows will be picked up at pumping plants for their journey southward. The first diversion will be in the form of a pumping lift and tunnel which will provide some 245,000 acre-feet of water per season to areas in Alameda, Santa Clara, San Benito, and San Mateo Counties.

The San Joaquin Valley unit of the project will comprise a canal of 11,000 second-foot capacity, pumping lifts, and a storage reservoir on San Luis Creek. This unit will provide approximately 2,000,000 acre-feet of new water each season for use on the west side of Fresno, Kings, and Kern Counties.

The Southern California unit of the project will include pumping plants at Pastoria Creek in Kern County, which will lift water from the San Joaquin unit to an elevation of 3,357 feet, and into a ten-and-a-half-mile tunnel through the Tehachapi Mountains. Several other possible routes through the Tehachapis are under study. Regardless of the final determination of the route to be used, it is planned to deliver about 1,800,000 acre-feet per season of new water through a system of canals and tunnels extending as far south as the Mexican border.

The Feather River Project, with an estimated capital cost in the order of $1,500,000,000 is but the first unit of The California Water Plan. It is apparent that the plan will involve the eventual construction of new works on nearly every stream in the State. It is also apparent that the full amount of the rights of California in and to the waters of the Colorado River must be protected to meet present future requirements within the State.

In addition, intelligent and planned use must be made of our natural ground water reservoirs. Notwithstanding the substantial present use of ground water, these natural reservoirs are for the most part undeveloped at the present time.

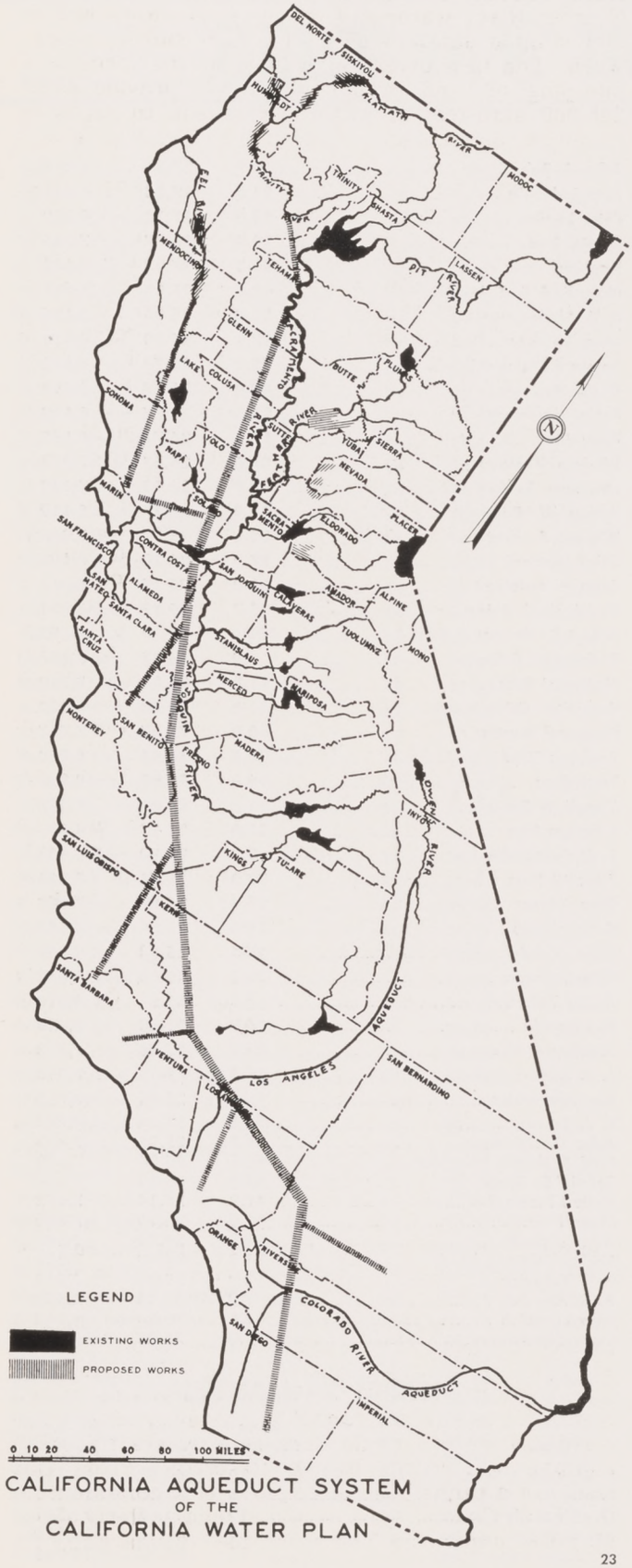
THE CALIFORNIA AQUEDUCT

The California Aqueduct, comprising a system of conduits to export surplus waters from the North Coastal Area and Sacramento River Basin to water deficient areas to the south, would extend from the Oregon line to the Mexican border. It would ultimately transport more than 23,000,000 acre-feet of water each season, about half of which would be from the North Coastal Area and half from the Sacramento River Basin.

Major works of The California Aqueduct in the North Coastal Area would be unprecedented in their concept and scope. Key reservoir and fulcrum of these works would be Burnt Ranch Reservoir, which would be constructed on the Trinity River about three miles upstream from the confluence of the Trinity and New Rivers, and at an elevation of about 900 feet. Other major reservoirs on the Smith, Klamath, Trinity, Mad, and Van Duzen Rivers would regulate the natural runoff of these streams. The regulated waters would then flow by gravity or be pumped into Burnt Ranch Reservoir. From this reservoir a tunnel, the principal export conduit from the North Coastal Area, would extend easterly about 35 miles under the Trinity Divide, discharging the

*Principal Hydraulic Engineer, Division of Water Resources, State of California.

This is the second Installment of a Paper presented to the Farm and Home Conference at the University of California, Davis, California, January 26, 1956.



CALIFORNIA AQUEDUCT SYSTEM
OF THE
CALIFORNIA WATER PLAN

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THE CALIFORNIA Water Plan gives full consideration to the fish and wildlife aspects of water resource development.

water into Clear Creek, a tributary of the Sacramento River, to begin its southward journey.

Additional water would be exported from the Trinity River in the Trinity Diversion Project, to be constructed by the federal Bureau of Reclamation in the immediate future, at sites upstream from the foregoing works.

Waters of the Eel River would also be developed for export by means of a series of major conservation reservoirs. Pumping plants would raise the conserved water, from reservoir to reservoir up the Eel, to tunnels beneath the southerly divide. One tunnel would receive water for export to the Sacramento River Basin by way of Clear Lake and Cache Creek. The other tunnel would receive water for export to the Russian River Basin and lands around the north shore of San Francisco Bay.

Major works in the North Coastal Area would make available nearly 12 million acre-feet of water seasonally for export, and produce almost 10 billion kilowatt-hours of electrical energy each season, about 60 per cent of which would be required to pump the exported water.

Development of the water resources of the Sacramento River Basin would supplement the existing pattern. Dams and reservoirs would be constructed in the high mountain watersheds to regulate stream flow for discharge through hydroelectric power plants. Releases would be made to maintain live streams for the enhancement of fish, wildlife, and recreation, and to furnish water to mountain and foothill service areas. At the base of the foothills, major reservoirs would be constructed which would re-regulate upstream hydroelectric power releases of water, conserve substantial portions of the remaining unregulated flows, and provide large measures of flood control. The major foothill reservoirs would be conjunctively operated with the storage capacity available in the ground water reservoir underlying the floor of the valley. The structures involved would include 11 large multipurpose dams

(Continued on page 24)

The Honor Roll For 1955

DISTRICT 1—SPRECKELS

Grower	Acres Contracted	Tons Per Acre	Lbs. Sugar Per Acre
J. G. Marinovich	32.1	38.88	11,935
McKinley & Nevin	36.5	35.75	10,580
T. G. Bacciarini	23.0	34.60	11,081
Botelho Bros.	8.0	33.79	10,737
Leo A. & Robert L. Meyer	19.1	34.32	10,817
Lee F. Smith	37.9	33.71	9,569
R. V. Tidd	26.8	32.68	9,641
Chas. Gianolini	57.3	32.63	9,674
Manuel Silva	53.0	32.35	10,549
Harden Farms of Calif.	29.6	31.61	9,491
Jensen Farms, Inc.	80.0	31.28	9,559
W. W. Johnson & Sons	39.4	31.27	9,768
Matteucci Bros.	6.3	31.25	9,954
Matteucci Bros.	3.4	31.25	9,954
M. P. Domingos	35.9	31.21	9,193
George M. Petersen	40.0	31.03	8,652
Alfred Riva	12.5	30.96	8,669
Gibson Bros.	28.1	30.84	10,182
Gerald Griffin Co.	22.5	30.82	9,863
Pete Vojvoda	6.4	30.76	9,469
L. J. Lazo and Paul Deo Campo	13.7	30.66	9,892
Tognetti Bros.	33.0	30.54	9,710
Lawrence Brickey	46.0	30.48	9,131
Obata Bros.	31.7	30.27	9,605
R. G. Wood	12.5	30.19	9,402
O. O. Eaton, Inc.	40.0	29.96	8,805
Tognetti Bros.	41.0	29.76	9,193
Wilmer Pura	13.0	29.73	8,979
R. Sargenti & Son	6.8	29.62	9,369
Alvin Noll	21.5	29.53	9,329
A. S. Duarte	45.1	29.50	10,135
Leo A. & Robert L. Meyer	65.6	29.49	8,684
Martella Bros.	27.8	29.48	8,886
Joe P. Gambetta	26.5	29.26	9,222
G. W. Herbert	49.9	29.19	9,305
Bob Corda	7.3	29.18	8,543
I. Sciaroni	30.6	29.15	7,989
Clark & Romans	97.0	29.04	8,288
R. Sargenti & Son	9.0	28.89	9,503
M. R. Bernard	24.2	28.85	9,235
Gerald Griffin Co.	12.3	28.75	8,378
William D. Crinklaw	72.6	28.66	7,909
Turri Bros.	55.5	28.62	9,295
Raynold Buck Boone	13.0	28.58	9,146
Mary Arcotti	14.3	28.57	7,514
Michael K. Reed	21.1	28.44	8,532
Tognetti & Fillippelli	78.5	28.41	8,547
Clark & Togni	38.5	28.02	7,477
Alvin Noll	34.6	27.98	8,573
Charles S. Gubser	12.7	27.97	8,329
A. Vosti	27.8	27.93	8,013
J. P. Braycovich Co.	29.5	27.92	8,067
Duvall & Roberts	19.7	27.75	9,251
Albert Rohde	18.4	27.52	8,882
Antonio F. Silveira	18.3	27.45	8,605
Jim Fanoe	104.0	27.36	8,480
John & Bob Corda, Jr.	20.9	27.35	8,444
Pete Pedevilla	27.6	27.33	8,078
Peter Lesnini	28.0	27.18	8,153
Obata Bros.	99.8	27.17	7,986
Hitchcock Bros.	49.3	27.08	7,668
Mary F. & E. E. Nutting	61.6	26.88	7,281
E. H. Abeloe	35.0	26.86	8,874
Dean E. Pryor	97.6	26.80	8,330
James & Manuel Luis	92.2	26.79	8,911
G. A. Stephens	42.9	26.77	8,192
Foster Hutchings	20.5	26.77	8,163
Frew Bros.	26.7	26.71	8,853
William Yamano	84.6	26.67	7,977
Lawrence Brickey	53.9	26.53	7,600
Arthur W. Buzzini	26.9	26.37	8,419
William A. Hart	33.6	26.32	9,043
John Gardoni	28.9	26.28	8,490
John P. Botelho	10.0	26.24	8,512
G. W. Hook & Son	35.7	26.23	8,161
Albert C. Hansen & Son	100.0	26.17	8,383
R. Sargenti & Son	8.9	26.15	8,148
Matteucci Bros.	11.0	26.01	8,760
Franscioni Griva & Son	51.4	25.98	8,020
Raymond Martin	50.0	25.97	7,727
Anthony Silva	98.2	25.96	8,203
Turri Bros.	96.6	25.88	8,339
Vanoli & Bravo	22.6	25.87	7,967
Schween Bros.	31.6	25.83	8,191
T. O. Tomasello Co.	5.2	25.80	6,988
Frassetti Bros.	29.0	25.74	7,855
Glen Wimer	27.4	25.67	7,178
K. Kamimoto	34.3	25.64	7,373
Albert Rohde	17.5	25.63	8,399
Pete Vojvoda	15.3	25.58	8,618
A. D. Villarba	8.8	25.51	6,913
Ray Rianda	24.9	25.48	7,658
Steidley & Uyeno	22.9	25.40	7,783
J. P. Adams & Son	16.3	25.38	7,813
Roy Alexander	12.8	25.35	8,718
F. S. Travers	28.6	25.34	8,086
John D. Domingos	24.7	25.25	8,663
Fred & Martin Ramseier	46.6	25.24	7,879
Bennie S. Black	30.2	25.19	7,406
United Farms Co.	29.2	25.14	7,872
Steve Pervetich	10.0	25.10	7,880
Angelo Corda	29.0	25.09	8,105
Michael Gomes Reed	14.9	25.09	7,658
Pete Vucovich	1.0	25.08	6,553
Pete Vucovich	7.2	25.08	6,553
Pete Vucovich	16.0	25.08	6,553
Louis Senestraro	32.0	25.00	8,199

DISTRICT 2—MANTECA

Grower	Acres Contracted	Tons Per Acre	Lbs. Sugar Per Acre
L. W. Frick & Sons	30	46.22	11,619
Triple "J" Farms	96	42.10	10,171
O. Gianecchini	19	41.63	11,581
Barnard Bros.	59	41.18	11,299
W. J. Greenlee & Son	24	39.75	11,781

These are the growers whose contracts with Spreckels Sugar Company yielded 25 tons per acre or more. That there are so many names on this list is proof of good farming—from seed to harvest. Congratulations from Spreckels Sugar Company

Maze & Lewis	15	39.56	12,777
Sherman A. Cave	3	37.99	9,641
J. Howard Porter	65	35.86	9,079
H. & B. Farms	50	35.61	8,930
L. C. Kreim	10	35.44	9,292
Floyd Hudiburg	14	35.21	9,182
Frick Bros.	114	33.82	9,158
B. L. Parsons	48	33.74	11,370
Hanson & Barkley	50	33.72	10,190
Newhall Land & Farming Company	185	32.53	8,997
Newhall Land & Farming Company	155	31.85	9,102
Joe G. Banducci	25	31.64	7,751
Manuel Fialho	24	30.93	9,365
Joe Escobar, Sr.	29	30.66	8,781
Brannan Farms	15	30.52	8,649
Albert Bevis	75	30.28	8,763
Kennedy & Stephens	15	30.22	6,757
S. Nogare	33	30.21	9,365
Joe G. Fanucci	74	29.78	7,176
John Howard	50	29.77	8,734
George Holck	10	29.60	8,477
Manuel J. Gonsalves	28	29.53	8,965
H. C. & H. M. Fisk	62	29.40	8,684
Double "L" Farms	16	29.28	7,952
Newhall Land & Farming Company	19	29.25	8,856
H. & B. Farms	20	29.22	6,802
Joseph D. Valenti	65	28.93	8,100
Norman Vogt	60	28.87	9,024
Nobuo Sakamoto	14	28.85	9,232
Sanders & Sanders	92	28.78	8,415
R. M. Root	37	28.74	7,633
Hans Hansen & Son	10	28.71	10,059
Dwayne Petz	15	28.62	8,643
R. Gianecchini	7	28.52	8,099
Roy Craven	51	28.31	8,226
Miller & Lux, Inc.	65	28.24	9,336
Horace V. Crecelius	70	28.03	9,378
Newhall Land & Farming Company	59	27.98	8,394
Higginbotham Bros.	35	27.86	7,215
Lester Rodgers	40	27.66	8,054
Joseph Widmer	48	27.61	9,122
Nick Spanu	19	27.45	7,576
Joe Escobar, Jr.	41	27.33	7,652
Heckert & Warford	108	27.26	7,491
West Coast Farms	40	27.21	8,282
E. Sousa & Sons	14	27.00	8,920
Newhall Land & Farming Company	60	26.96	8,158
S. & D. M. Biancucci	125	26.88	7,881
Miller & Lux, Inc.	60	26.83	7,426
Sanders & Sanders	61	26.72	6,562
Robert S. Rorick	15	26.57	6,042
Newhall Land & Farming Company	41	26.56	8,010
Kiyoi Bros.	30	26.46	7,985
Takemori Bros.	66	26.38	8,367
Manuel Fialho, Jr.	12	25.92	7,532
Elroy Gomez	46	25.90	7,868
M. E. & Frank Silva	29	25.87	6,917
Sanders & Sanders	25	25.85	6,235
Ishida Bros.	26	25.80	7,796
Miles H. Thomas	7	25.56	6,865
Gerhart & Son	25	25.36	7,400
Albert Angus Ranch	29	25.35	7,594
J. L. Green	135	25.34	7,475
John J. Armanino	59	25.21	5,652
S. & D. M. Biancucci	154	25.12	7,520
J. Sanchez & Sons	236	25.09	8,365

DISTRICT 3—WOODLAND

Grower	Acres Contracted	Tons Per Acre	Lbs. Sugar Per Acre
Fred H. Rehrman	83	34.25	8,322
George L. Barry	60	33.81	8,919
Wilder Bros.	33	31.50	9,355
Guido Romani	55	31.44	8,174
Calif. Packing Corp.	8	30.56	9,809
Erle E. Santens	30	30.28	8,563
Regents U. of Calif.	6	29.75	8,556
C. Bruce Mace	221	29.33	8,628
James I. Tadlock	100	28.91	8,337
E. A. Carden	48	28.75	8,682
W. H. or Myrtle Meek	52	28.39	6,938
Van Smith	110	28.35	8,533
Calif. Packing Corp.	95	28.33	8,555
Edwin M. Ullrick	72	28.32	8,462
M. Anchita	64	28.28	8,076
Carl H. Becker	132	28.10	7,986
Tsuji & Inouye	19	28.01	7,422
Tsuji & Inouye	60	28.00	7,504
Stanley Rooney	20	27.68	8,680
Joseph W. Machado	23	27.62	6,672
Malcolm Farms	114	27.60	7,788
Gill and Hull	79	27.58	8,163
Edgar Everett	75	27.31	8,269
E. A. Carden	45	27.31	7,706
Martin Bros.	73	27.29	7,335
Wm. E. Duncan	19	27.16	8,229
Harlan & Dumars	62	27.14	7,572
Fred H. Rehrman	66	26.86	7,912
Morris Carden	117	26.68	8,510
M. Martinez	27	26.68	7,331
Rudy Howald	45	26.44	7,609
Arnold Collier	45	26.43	7,178
George Struve & Son	280	26.23	8,105
Meek & Le Maitre	80	26.13	8,304
Paul W. Reiff	75	26.10	7,354
Walter M. Rigney	70	26.03	7,819
M. Romani	110	25.95	8,023
K. Shimizu	54	25.81	8,109
George L. Barry	103	25.80	7,631
Schneider, Fricke & Schneider	43	25.70	7,802
M. B. Thorley	76	25.59	8,823
Theodore Strehle	19	25.53	7,204
Calif. Packing Corp.	75	25.45	7,283
Richard Moore	70	25.45	7,197
Richard Moore	71	25.42	7,311
Leroy Leonard	17	25.39	7,586
A. L. & E. R. Reel	8	25.39	7,586
Frazier & Kerschen	20	25.21	8,273
Mrs. A. J. Greer	51	25.10	7,198

BEET TOP SILAGE? IT CAN BE DONE!

By S. L. STOVALL, *Livestock Specialist, Spreckels Sugar Company*

"BEET TOP SILAGE just won't work; not in California's hot central valley, anyway." This has been the feeling of most beet growers who have tried to save their tops by making silage. Their best efforts have usually resulted in producing a slimy, foul smelling substance that didn't vaguely resemble a quality cattle or sheep feed. California seems to be unique in this, for in the mountain states and in Europe's sugar beet countries, putting up tops as silage is a common practice. Good silage is being made in Colorado's beet districts merely by putting tops in any upright or trench silo that provides proper drainage and a good air seal.

Help in explaining why tops should spoil as they do has been sought at the University of California's Bacteriology Department. They are presently studying the problem, and should come up with some real answers on how to treat beet tops in order to produce the best ensiled material.

Meanwhile, Spreckels Sugar Company has been busy finding ways to prevent spoilage and to produce good silage. An inquiry was begun into what was known about ensiling other crops, and plans were made to test certain preservatives when added to top silage.

It was found that there are three principle requisites to making good silage in any crop. They are proper acidity, absence of air (oxygen) and correct moisture (about 70%).

With these facts in mind, a simple, exploratory experiment was undertaken to determine if good beet top silage could be made by adding similar preservatives to those used to ensile other difficult-to-cure crops.

Three temporary "snow fence" silos were constructed. Each was approximately 25 feet in circumference. The pickets were lined with a strong, waterproof building paper. Fresh tops were put in these silos, and in two cases preservatives were added. The third was left untreated.

The materials used were a mixture of phosphoric acid and sodium propionate in one silo and sodium metabisulfite in the second. The phosphoric acid was added at a rate of two gallons of 75% acid per fresh ton of tops; in addition, sodium propionate was included in an amount equal to 7 pounds per ton. In the second treatment sodium metabisulfite was applied at the rate of 10 pounds per ton of tops. The control, of course, contained only fresh tops.

The tops for this experiment were obtained from beets grown near the Woodland factory during the spring harvest just completed. It was recognized that spring beets were not typical as far as tops were concerned. The yield of tops varied from as low as one ton of fresh tops per acre to about five tons. These yields are very low as compared to fall harvest, when green top yields are comparable to root yields.

Much of the material was dry and moisture analysis was below that expected from fall beets. Despite these variances from fall conditions, it was believed that some indication of what would occur with different treatment could be obtained.

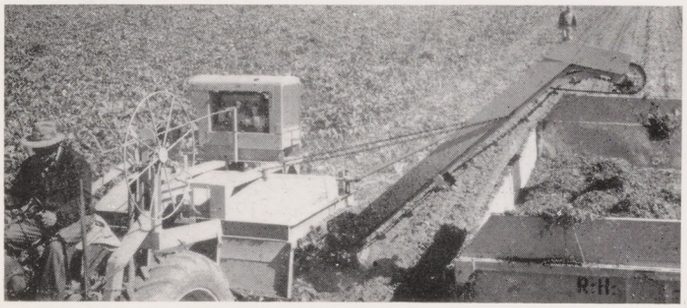
A word about machinery for this job. We used an experimental harvester that resembles the familiar Olson Rotobeater. The tops are removed from the standing beets by rubber flails, conveyed by a chain drag up an incline, and dumped into a truck. Equipment of similar principal, but depending upon a fan or draft of the flails to blow the tops up a spout and onto a truck, are available. The Lundell and John Deere forage harvesters are examples of such equipment. Either will perform the task in a satisfactory manner. The new Gemco topper delivers tops complete with crown, but can be used only with the Gemco digger.

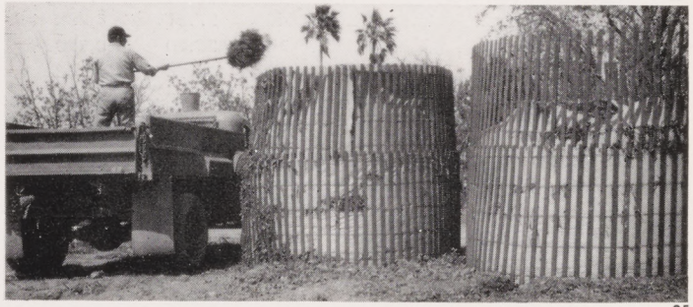
Examination of the ensilage two months after it was put in the silos confirms the belief that acidifiers are necessary in order to make acceptable silage in California. Both treatments resulted in a good product.

The appearance and odor of the sodium metabisulfite treated material was considered superior, however. It was a pale yellow color, and in appearance and odor closely resembled sauerkraut. The phosphoric acid treatment produced a silage that was only slightly less desirable. It was not so bright in color, being more of a green than yellow.

It was found that the untreated tops spoiled as past experience had indicated. Their foul odor suggested the typical putrefaction and decay of rotting vegetation.

This test was most simple and, of course, leaves some questions unanswered. It has shown, however, that good silage can be made from beet tops.





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IN THE silage trials described above, beet leaves were stripped and elevated by an experimental Rotobeater equipped with delivery elevator (left). Stripped leaves were then hand-forked into temporary silos made of snow-fence, and lined with waterproof building paper.

You can use this information to extend your sugar beet income—good silage can be produced if you will:

1. Assure proper drainage of excess plant juices. Avoid pit silos in areas of high water level or poorly drained soils.
2. Seal out all outside air. Packing probably isn't necessary because tops will settle quickly on their own account. New tops can be added as this occurs. The finished pile must be covered, however.
3. Add an acidifier as a preservative. We recommend 10 pounds of sodium metabisulfite per ton. Sprinkle this on as the tops are placed in the silo.

John Deere Mfg. Co. Photo 26

THE JOHN DEERE No. 10 Rotary Chopper.

Lundell Mfg. Co. Photo 27

THE LUNDELL chopper in a beet field.

General Machine Co. Photo 28

THE NEW GEMCO Topper delivers tops complete with crowns.

SPRECKELS SALUTES A WINNING TEAM

EACH YEAR at the San Francisco Junior Grand National Livestock Exposition, 24 of the outstanding young men and women from Northern and Central California's 4-H Clubs and Future Farmer chapters are selected to receive the San Francisco Junior Chamber of Commerce Merit Awards. The recipients of this award are selected from a group of young people who have been recommended by their leaders for their academic achievement, their leadership, and good character. They are chosen by a committee of young agricultural leaders after a review of the young person's achievements and a personal interview. Twelve awards are made to 4-H Club members and the same number are made to Future Farmers.

Spreckels is proud to be a sponsor of such an award, which amounts to the providing of the money to buy a calf of the winner's selection. It is doubly proud to be a part of the winning combination of fine leadership and outstanding young men.

Such a combination has been developed at Winters High School where for two consecutive years a member of the Winters F. F. A. chapter has been sponsored by this company. The Agricultural instructor at Winters, Mr. Jerry Davis, is to be congratulated for his part in showing the way to success to his young students. However, he never would have enjoyed such success if he had not had the high quality of raw material to work with as he had in the last year's winner, Dale Hansen, and this year's victor, Leland Johnson.

Congratulations to Winters for having so fine a record!

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LOYD STOVALL (left) and Jerry Davis (right) check up on Dale Hansen's Angus and Leland Johnson's Hereford.

WATER PLAN

(Continued from page 19)

and reservoirs, with net storage capacity aggregating about 18 million acre-feet.

The developed waters of the Klamath and Trinity Rivers, together with those of the upper Sacramento Valley, would be conveyed southerly in a west side canal, and in the channel of the Sacramento River, joining the waters of the Eel River, those developed by the Feather River Project, and additional water yielded by other developments in the Sacramento River Basin. These waters, crossing the Sacramento-San Joaquin Delta by several routes, would, if combined in one conduit, require a rectangular channel 50 feet deep and 200 feet wide, which would flow full for 365 days of every year. Actually, some modification of the so-called "Biemond Plan," involving a physical salinity control barrier upstream from the confluence of the Sacramento and San Joaquin Rivers, would probably constitute one of principal cross-delta routes.

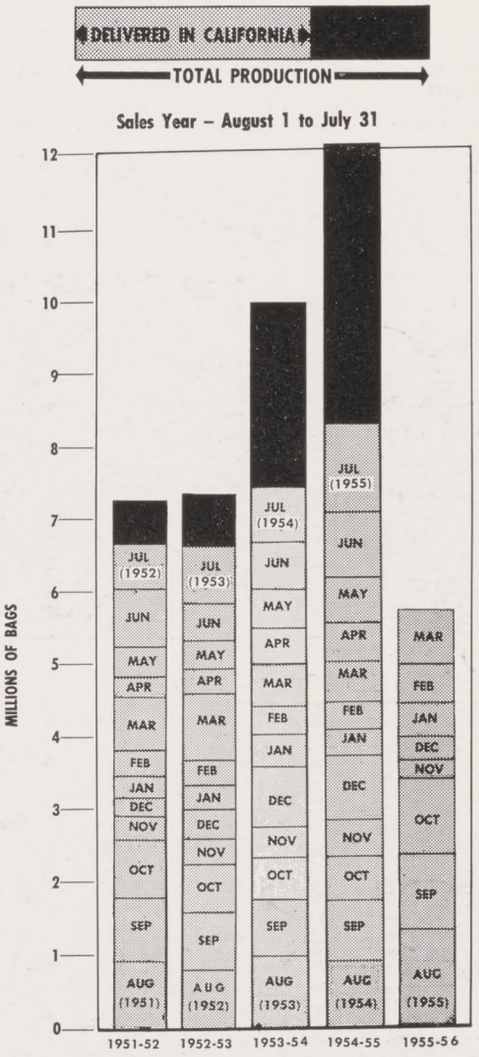
As in the case of the Feather River Project, a portion of the water pumped from the Delta would be conveyed to Alameda, Santa Clara, San Benito, and San Mateo Counties. Dams and reservoirs, pumping plants and conduits, would make available nearly 800,000 acre-feet of water to the service area each season.

An additional major diversion would be made from The California Aqueduct in the San Joaquin Valley. This would involve pumping from Avenal Gap Reservoir, on the lower west side of the valley, over and through the Coast Range, and would furnish over 1,100,000 acre-feet of water per season to Monterey, San Luis Obispo, and Santa Barbara Counties.

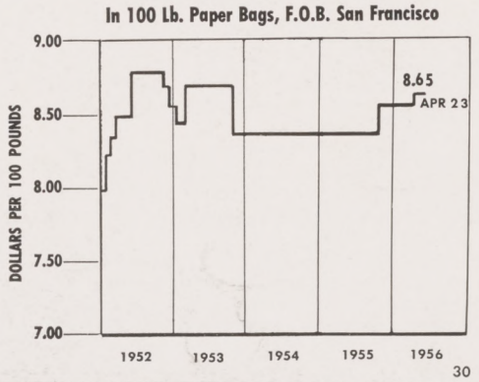
In the San Joaquin Valley, the works of The California Aqueduct would have two principal purposes; first, to conserve local water supplies, and second, to import and transport supplemental water from the north. As in the Sacramento Valley, local water supplies would be regulated and conserved by reservoirs constructed on all the larger streams. The San Joaquin Valley is, however, an area of substantial water deficiency, and even with the full development of local water resources, large diversions would be made from The California Aqueduct.

It is interesting to note that, under the directive contained in the legislation authorizing the investigation, full consideration is being given to the fish and wildlife and recreational aspects of water resource development. In furtherance of this planning, valuable advice and active assistance have been obtained from the California Department of Fish and Game. Numerous dams and reservoirs are being planned for stream flow maintenance purposes, in the interest of enhancing the fisheries and recreational values.

PRODUCTION AND DELIVERIES OF BEET SUGAR IN CALIFORNIA



QUOTED PRICE OF BEET GRANULATED SUGAR



The SPRECKELS SUGAR BEET BULLETIN is issued bi-monthly by the Agricultural Department of the Spreckels Sugar Company as a service to its growers.
Mention of specific methods, devices and implements does not constitute an endorsement by the Company.
All photographs by the editor unless otherwise indicated.
AUSTIN ARMER, Editor SPRECKELS SUGAR COMPANY WOODLAND, CALIFORNIA

SPRECKELS SUGAR BEET BULLETIN

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BEETS ON SILVER PLATTERS

aren't necessary for our factory operations. But we all profit from beets without

TRASH

CLODS

TOPS

Reasonably clean beets benefit both the grower and the processor.

See page 26

Vol. 20 JULY-AUGUST, 1956 No. 4

PUBLISHED FOR CALIFORNIA SUGAR BEET GROWERS BY THE SPRECKELS SUGAR COMPANY

PLEASE — JUST THE BEETS

By AUSTIN ARMER
Agricultural Engineer, Spreckels Sugar Company

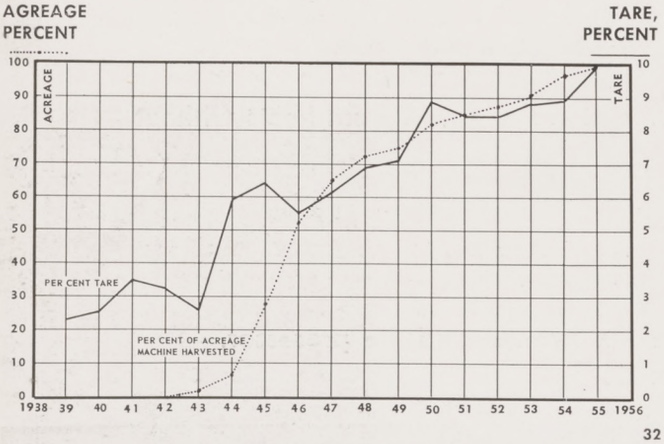
IN THE LAST few years, the quantity of foreign matter delivered with the beets has increased alarmingly and seriously interfered with sugar extraction. Mechanical harvest was partly responsible for the increasing delivery of clods and trash, and for poorly topped beets. But the factories kept pace with mechanical harvest; installed quantities of new cleaning equipment — new, larger screens, additional trash catchers and new rock and clod traps.

It is the abuse of mechanical harvest that causes the real trouble — that taxes the factory cleaning facilities beyond their capacity, and is the direct cause of factory slow-down.

1955 was the worst year for dirt and trash ever experienced with beets harvested in the Central Valleys. The actual dirt weight delivered with each ton of beets increased by 13% over the past 5 year average.

All this dirt cost the growers who delivered it a fortune in hauling costs, and caused other growers serious reductions in delivery quotas. It is therefore the responsibility of every man operating a harvester in adverse conditions to make whatever adjustments are necessary to minimize delivery of clods and trash, and to top each beet at a reasonably correct height.

For the benefit of the conscientious majority of harvester supervisors, who say with complete sincerity, "I'm doing the best I know how to," we publish on the following pages some helpful suggestions from the harvester manufacturers themselves. They know how difficult it is to operate in stubborn field conditions, and their sympathetic presentation of these suggestions may go far toward making the 1956 harvest the cleanest on record. We sincerely hope so — for your sake and ours.



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PERCENT TARE reached a new high in 1955—9.92%. Before World War 2, tare ranged between 2% and 3%. Unskilled field labor in 1944 and 1945 was responsible for a sharp rise, but since 1945, percent tare has been almost proportional to percent of acreage harvested by machine. But 1955 showed a sharp rise which points to a serious deterioration in harvest management.

33

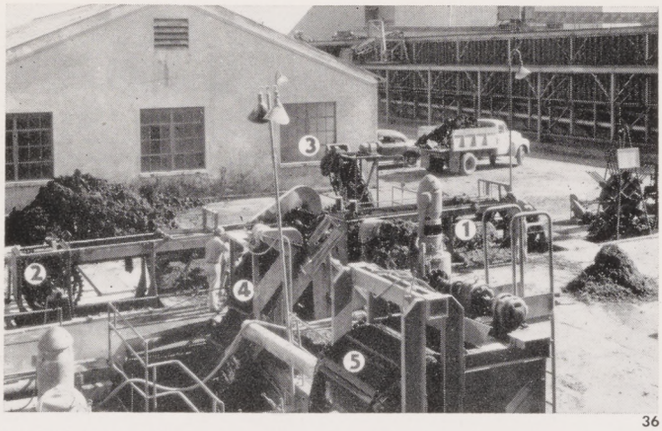
WE DON'T WANT beets with trash.

34

WE DON'T WANT beets with clods.

35

WE DON'T WANT beets with tops.



36

WE DO OUR PART—screened beets must pass trash catchers (1, 2), a rock catcher (3), leaf separator (4), and final trash screen (5).

37

MOVING MOUNTAINS of dirt and trash is a full-time job at all Spreckels factories.

38

TRASH is removed from the flumes by the ton. But some gets by to the cutters and seriously reduces factory capacity.

100,000 TONS

By LEWIS SCHMIDT
Blackwelder Manufacturing Company

DIRT AND TRASH — 108,000 tons of it — were delivered to Spreckels Sugar factories last year. A goodly part of this was unnecessary. Proper adjustment of your beet harvester will help to keep this expensive hauling of dirt and trash to a minimum. To aid in the control of this problem, we offer a review of adjustments for Marbeet Harvesters.

MARBEET MODELS "B" & "C" (TWO-ROW AND JUNIOR)

Dirt and Clod Control

Excessive pressure between the plows and the pickup wheel result in the spikes picking up large amounts of dirt and clods and also causing heavier draft. Keep this pressure to a minimum. Don't run the rear plow too far forward, or with any more suction than necessary for good recovery.

Keep the dirt filters clean. Use retarder curtains over the filters to increase cleaning capacity.

Do not set the defoliator too low. Leave four to six inches of tops on the beets.

Trash Control

Use defoliator in weedy fields or fields with heavy tops.

Use coulters to cut trash on each side of the rows.

Don't try to top too shallow.

Keep topping disks sharp.

Topping

Beets must be spiked properly and evenly to get good topping. Excessive pressures between the plows and pickup wheel will cause pickup wheel slippage which results in slanted topping of the beets. (See Dirt and Clod Control above.)

Top the beets. Don't try to scalp them. If a disk topping unit is used, set the strippers to lift the beets at least 2¾ inches from the rim of the pickup wheel. This loosens the beets on the spikes, allowing them to move as they are topped. Use the long stripper blades. Keep the topping disks sharp when working in trashy fields.

(Continued on Page 32)

COLLECTOR'S ITEMS like these 37mm armor-piercing shells belong in a curio cabinet. But we found them in our beet flumes!

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RECOMMENDATIONS FOR OPERATING GEMCO BEET HARVESTING UNITS

By E. C. ROLLINS
General Machine Company

THE GEMCO top harvester is a new development which gauges each beet individually, severs the crown at just the right level, and delivers the entire crown and top into the cross conveyor for either field windrowing or for elevating into a truck for green feeding or silage. The top harvester mounts under most row crop tractors and is driven from the PTO. When used as a top windrower, the topper and the Gemco 2 row lifter-loader can be attached to the same tractor to complete the entire harvest in one operation.

When properly adjusted and operated the Gemco top harvester will give good performance under a wide range of field conditions.

Here are some factory recommendations on trouble shooting the topper and adjusting it for maximum results:

1. Topper misses too many beets:

Too high row speed, recommended speed is 2½ to 3½ MPH depending on field conditions.

2. Too much green left on beets:

Knife set for too shallow a cut. Increase depth of cut or attach roto-beater to rear or tractor on which topper is mounted to clean up excess foliage.

3. Beets are pushed over:

Finding drum does not match ground speed. Be sure you are operating in proper gear to match topper drive sprockets. If drum speed still incorrect, change slip clutch sprocket to suit. Have your Gemco dealer assist you in this.

4. Top pick-up plugs with tops or trash:

Use coulters on front of tractor to cut excess tops and vines.

5. Pick-up jams with rocks:

Set lift cylinder depth control so that topping knives do not operate in soil. If some tops are growing flush with ground use clean up beater.

6. Pick-up fouls with stalk weeds:

Use narrowest topping knife available (7") to reduce area swept by knife. Operate pick-ups as high above soil as possible without missing too many beets. The topping knife will deflect most stalk weeds out of the way without cutting them off if it does not have to cut under the soil.

GEMCO 2 ROW LIFTER-LOADER

Since the Gemco 2 row beet harvester was introduced into California in the Spring of 1955, a number of improvements in design have been made in order to give better performance, especially under the hard, dry soil conditions which are common to a large percentage of California beet fields.

The following trouble-shooting list is devoted to adjusting the harvester, and to equipping it with hard soil kits in order to obtain acceptable results in hard, dry soils:

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PROPER ADJUSTMENT of the GEMCO Topper is essential for a clean harvesting job.

1. Harvester will not stay on beet rows:

This usually indicates that excessive down pressure is required to force the lifting wheels in the ground, and that plow-out chisels are needed to obtain penetration. Install one chisel per row, preferably on the outside. Run the chisels as shallow as possible and still get good results. If too many beet tails are broken, run the chisels deeper. Install two chisels per row if conditions are severe. (Use the chisels only when needed to get penetration or prevent tail breakage. Better results will be obtained when chisels are not used).

2. Harvester delivers too many clods:

Run the lifting wheels as shallow as possible without breaking too many tails. Under most conditions the wheels need not penetrate the soil more than 3½ inches to lift any beet. This depth can be checked by scooping the loose soil from the wheel tracks in the dug rows. Check both rows for depth. The left hand pair of wheels should run slightly deeper than the right hand pair to compensate for the side draft of the loading elevator.

Additional cleaning can be obtained by reducing the number of flights in the loading elevator to as little as one-half of the standard number of 18.

If the number of clods delivered is still excessive, a Reinks screen change-over kit is available from your Gemco dealer to replace the potato chain in the cross conveyor of the 1955 model. Growers who have made this conversion report a reduction in soil and clods hauled of about 50%. Chain flails to replace the solid beet ejecting paddles are also helpful in reducing clods. Your dealer has them.

3. Harvester delivers too much trash:

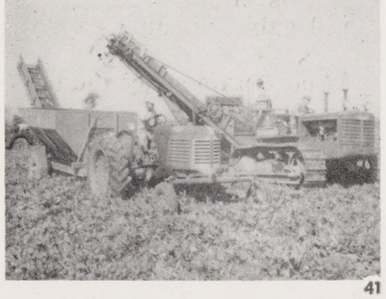
The Gemco lifter-loader is very effective in eliminating ordinary amounts of trash, and if excess trash appears in the load it can usually be attributed to a poor topping job rather than to the lifter-loader. If a roto-beater is used it should be adjusted to do a good clean-up job directly over the beet rows. If the Gemco top harvester is used, the preceding notes covering that machine will apply.

SOME IMPROVEMENTS IN HARVESTING MACHINERY

CALIFORNIA FARMERS have such a reputation for improving farm machinery or building their own special machinery that reporting such cases is hardly news. Occasionally, however, one sees such definitely clever improvements in harvesting machinery for sugar beets that they seem worthwhile passing along to readers of the Spreckels Sugar Beet Bulletin.

Heidrick Brothers of Woodland have a long record of machinery design and construction for all of their farming operations. For the past year, they have been using an opening-up cart in harvesting their several hundred acres of sugar beets. Like much of the machinery the Heidrick Brothers use, it was designed and built in their own shop, using standard parts whereever these were available. The opening-up cart contains quite a few Marbeet harvester parts, specifically the elevator chain and idler assembly. In using any two row sugar beet harvester, opening-up is a problem, and the use of a cart such as the one illustrated here is a great help, because it makes possible running the harvester through the field at any point in order to open up truck lines, yet has the advantage of keeping the trucks off the unharvested beets. The tread of the opening-up cart is 80 inches, which keeps the wheels centered in the furrows so that none of the beets are damaged.

Drivers of wheel tractors, whether they are used for harvesting or any other field operation, can get pretty tired from leaning to one side or the other in order to keep an eye on the row. Perhaps farmers are less apt to consider the comfort of themselves or their workers than are city-bred electronic engineers. At least one might gather this to be the case because the tractor on which Hewlett-Packard Company mounted their electric-eye thinner for experimental purposes was provided with an armrest for the operator. He can lean well to the right; get perfect visibility; and have all of the driving comforts of a locomotive engineer with his padded armrest.



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HEIDRICK BROTHERS' opening-up cart has an 80 inch tread and is drawn through the unharvested rows by a wheel tractor while it receives beets from a 2-row Marbeet harvester.

The cart's delivery elevator, driven by the tractor power takeoff, quickly discharges its load to a waiting truck before starting to open up another land.

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SOLID COMFORT for tractor drivers is afforded by this arm rest.

With the greater interest in conserving sugar beet tops, it is noteworthy that a growing number of two row Marbeet harvesters have been provided with potato chain foliage conveyors to replace the regular foliage belts. These potato chains sift out a good deal of the dirt that comes along with the tops, and deposit the tops in fairly clean windrows, spaced so that no tops need be run over by trucks. (Spreckels Sugar Beet Bulletin, May-June, 1953 and Sept.-Oct., 1955.)

GAS TAX REFUND FOR FARMERS

UNDER A LAW enacted on April 2, 1956, farmers are entitled to claim refunds each year for the Federal excise tax on gasoline used on a farm for farming purposes.

U.S. Treasury Department Publication No. 308, "Farmers Gas Tax Refund" is a pamphlet which explains how to claim a refund of the tax on gasoline used during the 6-month period January 1 through June 30, 1956. In future years each claim will cover the 12-month period beginning July 1 and ending June 30.

This pamphlet also explains how the new law relieves farmers from the Federal excise taxes on diesel fuel and special motor fuels.

The new law does not relate in any way to State taxes on gasoline.

The pamphlet and Form 2240, "Claim for Refund of Federal Tax on Gasoline Used on a Farm" are available at district and branch offices of the Internal Revenue Service.

A REVIEW OF SPRECKELS 1955 AGRICULTURAL RESEARCH PROJECTS

By DR. R. T. JOHNSON
Director of Agricultural Research
Spreckels Sugar Company

FOR THE PAST few years the varietal improvement program of Spreckels Sugar Company has been in a state of transition from varieties previously used to varieties developed more for the specific conditions under which beets contracted to Spreckels are grown. This transition has reached a point to where, at present, all seed grown for Spreckels Sugar Company is of varieties of our own development. The methods used for determining the best varieties for different locations or under different growing conditions have been the planting of many comparative trials in which the performances of different varieties have been tested. In this effort special thanks are due the many growers who have made their land available to our agricultural research staff for the many tests that have been conducted. Without this cooperation, it would have been impossible to acquire as accurate an evaluation of available material as has been done. From a study of the data from all these tests, those varieties which performed most satisfactorily under a given set of conditions have been increased for commercial use.

VARIETY IMPROVEMENTS

The varietal development and seed production situation, however, is never at a standstill. Hardly is one stage of transition completed until another is immediately apparent. It now appears to be only a matter of a few years until most of the varieties of sugar beets grown will be hybrids. The exploitation of hybrid vigor in agricultural crops is nothing new. Hybrid varieties of corn, onions and several other crops have been available for years. Hybrid varieties of sugar beets, however, are relatively new. Most of the mechanics and difficulties of seed production have now been improved to the point where the main course of study lies in the determination and isolation of strains that combine well and utilizing these high combining strains in the most desirable hybrid combinations. Sufficient amounts of a hybrid that has performed well in past tests will be available in 1957 in small quantities to most growers who wish to test it, except those growers who plant earlier than January. Hybrids available at this time do not have sufficient bolting resistance to be planted that early without producing seed stalks.

The use of hybrid varieties also makes possible a more advantageous use of single germ material. If the female or seed parent is a single germ strain, the pollinator can be either single or multi-germ and the seed produced for the commercial beet crop will be single germ. Some of our single germ hybrids have performed very satisfactorily in performance trials for the past two years. One of these, has performed exceptionally well. It is being increased for commercial use at present and will be available in limited amounts in 1957 to interested growers who do not plant before about the first of February.

DISEASES AND PESTS

The nematode problem in sugar beets, which has long been recognized as one of the most serious, seems to be getting more and more attention. There are several studies underway on an industry-wide basis in an effort to gain sufficient information to solve the problem.

In our own research program, we have been attacking the problem from two aspects. The one is by making plots of land available on which interested parties can try different types of soil fumigants in an attempt to kill the nematodes. One of these plots is maintained at Spreckels and the other at Woodland. Information gained from fumigant studies indicates that in the lighter sandy type soils fumigation is often practical but in the heavy clay type soil it is not. The primary reason for this is that the fumigant disperses readily throughout the volume of a porous, sandy type soil and achieves a good kill, but on the heavy soils the dispersal of the fumigant from the point of injection is poor because of the compact nature of the soil and in addition, these soils seem to have an adherent nature which holds the fumigant to the soil particles, thus retarding its dispersal. For that reason, there is usually not a satisfactory kill of the nematodes on the heavy type soils. Studies are still continuing, however, in hopes of finding a material that will accomplish the job.

The other method of attacking this problem in our own research program is that of attempting to develop beets with inherent resistance to this pest. This method has been by crossing sugar beets to some wild relatives that are resistant to the sugar

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LAUREN BURTCH, Spreckels Agronomist, demonstrates effectiveness of soil fumigants in combatting nematode in sandy soils (Left, untreated; Right, treated).

beet nematode. This method has been described in previous articles of the Bulletin, including the difficulty in propagating this material which required grafting the small seedlings of the cross onto other root stocks for survival. Grafting was required for survival because these interspecific crosses would not produce roots of their own. Plants of the first generation were backcrossed to sugar beets and this generation also required grafting for survival. These backcrossed plants were again crossed to sugar beets and it now appears that in this generation some of the plants are capable of developing a root and growing without the necessity of grafting. At this time, this is indeed an interesting and apparently a promising avenue of approach. Commercial results are a long way off, but the results thus far have been sufficient to maintain interest in it.

OTHER AGENCIES COOPERATE

On an industry wide basis, there are some projects supported or sponsored by the Beet Sugar Development Foundation that are also aimed at learning more about the nematode problem. At Salinas, California, there is an intensive project underway by the U.S.D.A. and supported, in part, by the Beet Sugar Development Foundation to determine if it is possible to select for nematode resistance of a commercial value within sugar beet varieties. Selections have been made and seed produced from these selections is now being tested for its resistance to the sugar beet nematode. A study is underway at the University of California, also supported in part by the Beet Sugar Development Foundation, to identify and isolate if possible the material produced by the sugar beet that aids in hatching the nematode from the cysts. Some substance or substances peculiar to and exuded by the roots of sugar beets have a very stimulating effect on the hatch of nematodes as compared to the effect of plain water or exudates from the roots of most other plants. At present a nematode survey is being conducted in the states of California, Colorado and Michigan under the sponsorship of the Beet Sugar Development Foundation with a grant from the U.S.D.A. The purpose of this survey is to study the different populations of nematodes in an attempt to more nearly identify how many different species or types of nematode parasitize sugar beets. It is hoped that all this interest in this very serious problem may provide information that can be of some use in controlling this pest.

One of the reasons it is difficult to obtain and keep stands of seedling sugar beets in certain areas at planting time is a complex of fungus organisms which cause a disease called 'damping off.' Two of the primary offenders are Rhizoctonia species and Pythium species. To determine if any strains of sugar beets were any more or less susceptible than others, several strains were planted in a special plot on the Woodland experimental farm where these organisms were known to occur. Some of the strains tested showed varying degrees of resistance to these organisms and work is now being started to see if varieties can be developed which will be able to grow even though these organisms are present.

OTHER ACTIVITIES

Each year we have continued to make studies on mechanical thinning of sugar beets. The results of each year seem to indicate that a satisfactory crop of beets can be grown if a mechanical thinner is used in the spring to reduce the stand. Results also indicate usually, that under the conditions of the tests, good hand thinning will pay for the additional cost of hand thinning over mechanical thinning. However, it is possible that hand thinners will become more and more scarce in the not too distant future and whether we want to or not, we will have to rely upon mechanical stand reducers for thinning the beet crop. For this reason, tests are conducted on mechanical thinning.

Work on varieties of sugar beets resistant to the factors which cause bolting or seed stalk production has resulted in some very promising material. Some of our selections have now resulted in commercial varieties. Not only are those varieties of value for early plantings in those areas where harvest is accomplished in the fall, but also they are of value in those areas where beets are carried through the winter in the ground by delaying the development of seed stalks for a period of two to three weeks later than present varieties.

For the past several years Spreckels Sugar Company has been carrying on a campaign to eliminate as far as possible volunteer beets which eventually revert to annual types and become tenacious weeds. With the mild winters in most of the beet growing areas of California these beets can grow throughout the year unhampered along fence lines, ditch banks, railroad rights of way and any other areas in which they are not disturbed. These beets harbor any disease or insect to which the sugar beet is host and serve as a source from which these pests can spread into commercial beet fields. Last year the California Department of Agriculture embarked upon a study to determine the best methods available for the eradication of these plants.

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CHEMICAL WEED CONTROL plots reveal that some chemicals can destroy all weeds but few beets (weedy patches untreated).

100,000 TONS

(Continued from Page 27)

MARBEET MODEL "D" (MIDGET) TRACTOR MOUNTED HARVESTER

Dirt and Clod Control

Run the plows as shallow as possible, using the reversed setting. Set them well forward.

Use little or no spring tension on the pickup wheel.

Keep the pickup wheel as high as possible consistent with good spiking and recovery of beets.

If a defoliator is being used, leave four to six inches of tops on the beets.

Keep the tractor engine at or near full throttle, to keep the auger and conveyors up to speed and to give maximum cleaning.

Trash Control

Use a defoliator in weedy fields or fields having excessive tops.

Adjust the coulters to cut two inches from each side of the pickup wheel, and to run about three inches in the ground.

Harvesting alternate rows where plantings permit also helps to eliminate trash.

Set the topping discs to cut off the crowns of the beets — not just cut off the leaves. Keep topping disks sharp when working in trashy conditions.

Topping

Beets must be properly spiked to get a good job of topping. Adjust plows and pickup wheel depth to give proper spiking. Excessive pressure between the plows and the pickup wheel will result in broken beets, too much dirt and heavy draft.

Keep the strippers set quite high between the spikes. About one inch of the spikes should extend above strippers where the beet will be topped. This allows the beet to be moved by the topping chain (which should be used in most conditions) as they are topped by the disks.

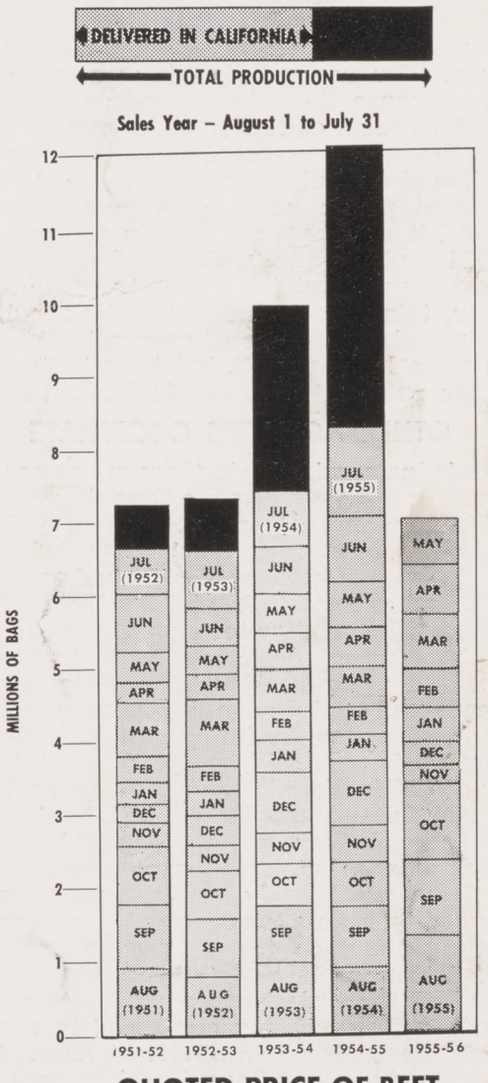
Set the topping disks to cut through the crown of the beet — not just through the leaves. Use as much overlap of the disks as possible.

A study of the above review, plus careful attention to the adjustment of your harvester in your conditions will greatly aid in the delivery of clean, properly topped beets.

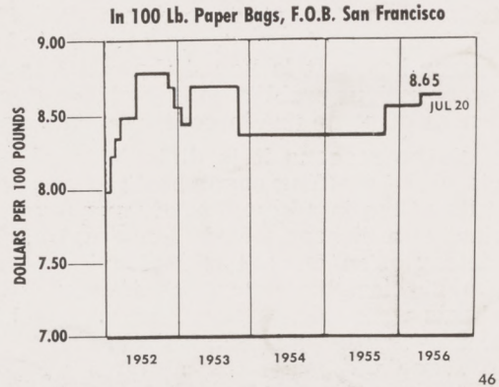
WE APOLOGIZE for an error in the 1955 Honor Roll. Shown as high man in District 3 — Woodland — was Fred H. Rehrman. This should have read Henry Rerhman.

Our apologies to Henry Rehrman, and our congratulations as well, for topping the District 3 list with a yield of 34.25 tons per acre.

PRODUCTION AND DELIVERIES OF BEET SUGAR IN CALIFORNIA

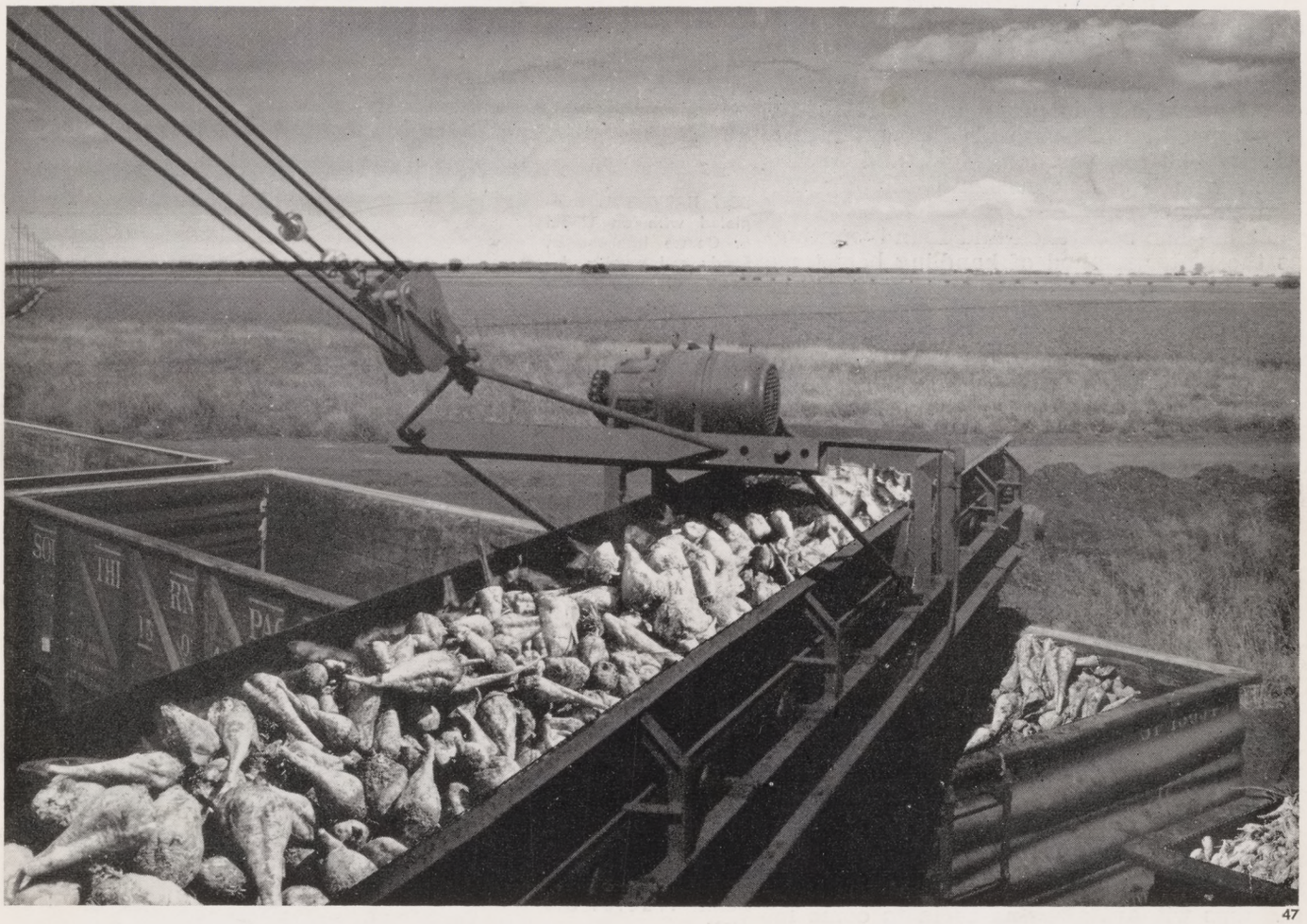


QUOTED PRICE OF BEET GRANULATED SUGAR



The SPRECKELS SUGAR BEET BULLETIN is issued bi-monthly by the Agricultural Department of the Spreckels Sugar Company as a service to its growers.
Mention of specific methods, devices and implements does not constitute an endorsement by the Company.
All photographs by the editor unless otherwise indicated.
AUSTIN ARMER, Editor SPRECKELS SUGAR COMPANY WOODLAND, CALIFORNIA

SPRECKELS SUGAR BEET BULLETIN



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SUGAR BEET RECEIVING

is a job of vital importance performed for the grower by the processor

WEIGHING
CLEANING
SAMPLING

the grower's beets are the essential functions of a receiving station — improving these functions is a continuing obligation of both. See page 36.

Vol. 20 SEPTEMBER-OCTOBER, 1956 No. 5
PUBLISHED FOR CALIFORNIA SUGAR BEET GROWERS BY THE SPRECKELS SUGAR COMPANY

TOP SAVING IN KERN COUNTY

By R. BRUCE DUNCAN
Assistant Agricultural Superintendent, Spreckels Sugar Company

THE WASTE of beet tops has been haunting many Kern County growers, especially those growers who are also cattle feeders. Typical of this group are Fred Frick, who topped all of Spreckels 1955 producers with a 46.2 ton per acre yield, and Archie Frick who is also consistently among the high producers.

Baling has been tried and found wanting as the better method of handling beet tops in Kern County. The low humidity of this reclaimed desert sometimes reduces leaves to dust before they can be windrowed and cured for proper baling.

It is not a new decision that the preferable method of top handling in this area should be ensiling. The lack of a proper and efficient method of harvesting tops **without dirt** has been the main deterrent to progress along this line.

With the arrival of the 1956 harvest, there also arrived, for approval, two machines, either or both of which may well eliminate the principal drawbacks of harvesting beet tops for ensilage.

From the standpoint of the root harvester or lifter loader unit, the machines are quite similar. It is the top harvesting and loading units which differ radically. The Oppel machine is a rotary flail type beater with a belt elevator which delivers semi-chopped leaf blades and stems. The Gemco, on the other hand, delivers the leaves and crowns unchopped, using a height-gaged knife to separate tops from roots. Both machines load the tops without allowing them to come in contact with the ground. It is this feature which sets these machines apart, and which warrants patient and painstaking trials such as performed by Fred Frick.

Both machines have been tried on Fred Frick's Fredlo Farms operation, and both show promise. The material from both pieces of equipment has been placed in a stack, some mixed with chopped corn silage and some straight beet tops. At this writing there is reason to be optimistic. Additional work will be done during the November-December harvest period, at which time Archie Frick plans rather extensive trials on his Sycamore Farms operation.

Typical of hot weather beet tops, the top yields in the Kern area are not as heavy as are those, for example, in the coastal regions. The ratio of roots to tops is much greater here than in areas with more moderate climates. The field illustrated was yielding approximately 26 tons of roots per acre with

(Continued on Page 37)

TOP HARVEST is done with this Oppel beater-topper (leaves only) or a Gemco topper (complete tops with crowns).

BEET HARVEST is completed with an Oppel or Gemco lifter-loader. Sandy soil permits delivery of very clean beets.

TOPS ARE DUMPED onto well drained flat ground — no silo walls are used, but the stack is kept as high as possible.

SILAGE IS SPREAD and compacted with a heavy crawler tractor and dozer.

SILAGE IS LOADED out with a Crose "Ensi-loader."

ELECTRICAL ACCOUNTING FOR SUGAR BEET DELIVERIES

By L. A. TINKER
San Francisco Office Manager
Spreckels Sugar Company

THE ACCOUNTING for all sugar beets received by the Spreckels Sugar Company in all districts is now done at the San Francisco office. The International Business Machines Corporation (IBM) automatic accounting system is employed, and a summary of the accounting procedure is here presented.

After the accuracy of each scale beam ticket and laboratory analysis ticket is verified, a punched card is prepared for each load of sugar beets received. These cards are prepared on the **card punch machine** on which an operator depresses a key for each digit of the information to be recorded. The machine punches out a small rectangular hole in a certain location on the card which will always represent the information as long as the card is used. The machine feeds, positions, and ejects the card automatically. The following data is punched into each card by the card punch operator:

1. Code number representing the station to which beets were delivered.
2. Date received.
3. Contract number.
4. Scale beam ticket number.
5. First net pounds.
6. Percent clean beets.
7. Percent sugar.

These cards are prepared at the rate of approximately 300 cards per hour.

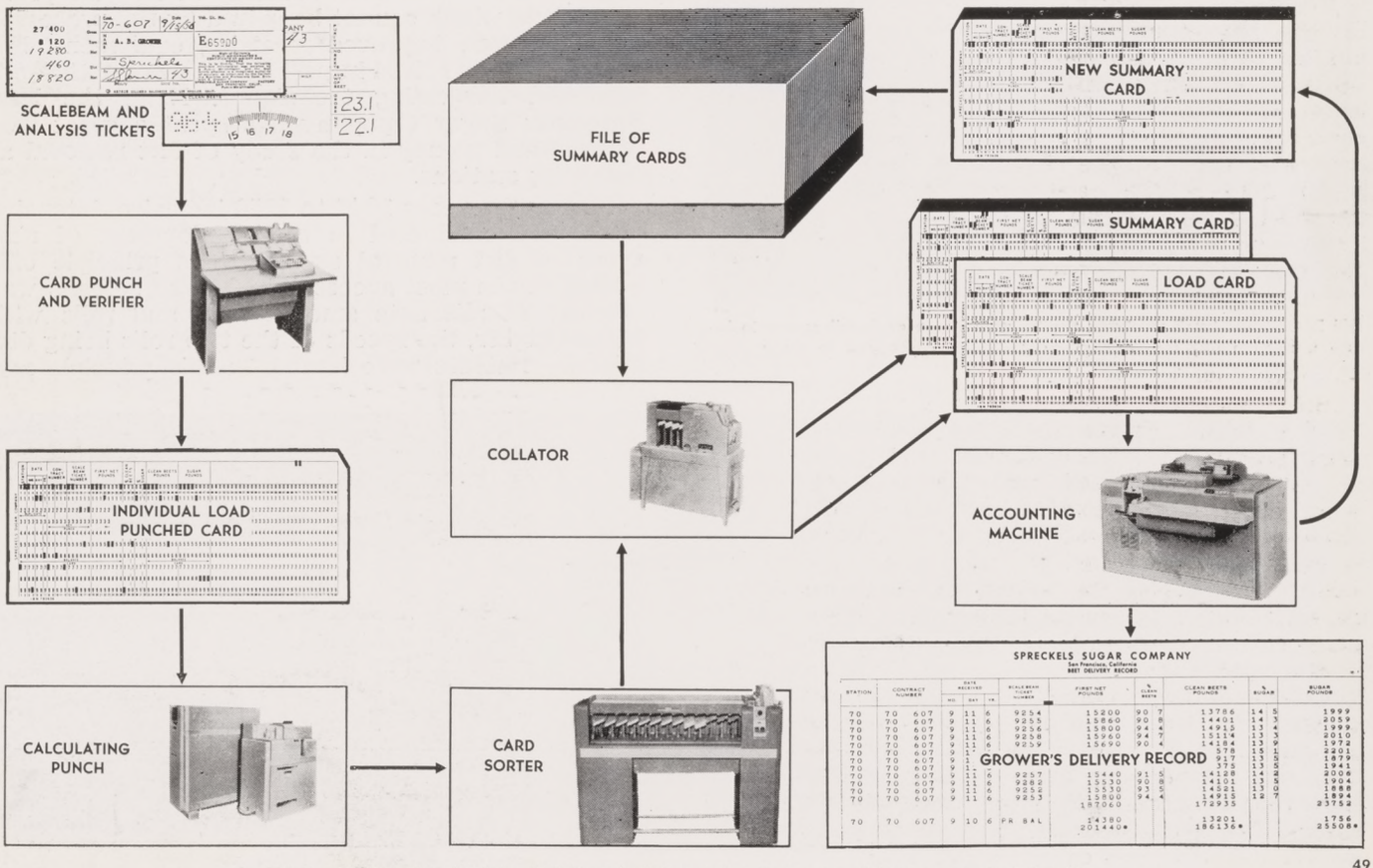
In order to avoid the processing of any cards that were punched incorrectly, all cards are verified on a second machine. This machine is operated by a second operator who, like the first, depresses a key for each digit of information recorded from the original source document. The machine compares the key depressed with the hole already punched in the card. Any difference causes the machine to stop and a red light to turn on, indicating a discrepancy between the two operations.

The cards are then processed by a **calculating punch machine** where the following calculations are made and the results automatically punched into the cards at a rate of 1,100 cards per hour:

1. First net weight multiplied by per cent clean beets—(result; Clean beet pounds.).
2. Clean beet pounds multiplied by percent sugar —(result; Pounds of sugar.).

These calculations are checked automatically by a second run through the machine to detect any possible error in the original calculations.

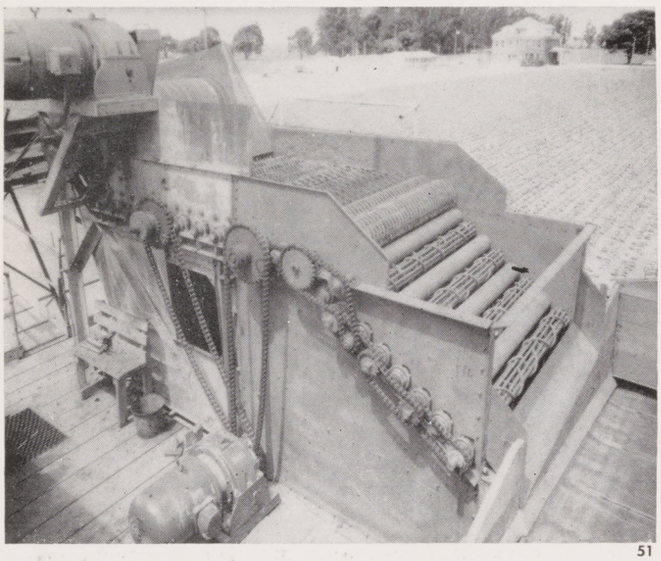
(Continued on Page 37)



This is a "Flow Sheet" of the IBM Electrical Accounting System used for sugar beet deliveries.

50

THE GILROY receiving station now has a sliding beet conveyor for loading transport trucks or rail cars.



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THE FACTORY I truck receiving station now has a grab-roll screen to insure maximum dirt and trash removal (guards removed to show drive mechanism).

SPRECKELS RECEIVING STATIONS ARE CONTINUOUSLY MODERNIZED

By AUSTIN ARMER

Agricultural Engineer, Spreckels Sugar Company

IT WAS NOT many years ago—certainly within the memory of many of us—when sugar beets were hauled in horse-drawn wagons to the factories or railside, the wagons laboriously pulled up high timber ramps to unloading platforms, and the entire load dumped into hoppers or waiting railroad cars with only a bare hint of dirt removal.

Now sugar beets are delivered in trucks, many of which are of maximum legal length, 65 feet overall. Along with the beets is delivered a vast quantity of dirt and trash which is in part the inevitable result of mechanical harvest. Today's receiving stations must serve no less than thirty cars a day, and must also be available at a moment's notice for delivering their cleaned beets to transport trucks when rail cars become unavailable. Spreckels Sugar Company has met these changing requirements of beet receiving stations as they arose, and currently these demands are being met as fast as possible.

In past issues of SPRECKELS SUGAR BEET BULLETIN (July-August, 1956, July-August, 1955) attention has been called to the tremendous problem created by the delivery of dirt and trash along with sugar beets. It has been pointed out that the problem is one which cannot be solved by the processor alone through improved receiving equipment, but which must be solved in part by the grower through improved harvesting techniques. None the less, Spreckels Sugar Company has spent a great deal of time and money in the study of dirt removal at receiving stations.

During the years 1947 to 1950 inclusive, intensive work was conducted in the development of new types of dirt removal screens. The principle embodied in the most successful of these screens was the use of alternate smooth rolls and rolls with helical flights, the speeds of the two rolls being dissimilar. Patents were issued on this principle and

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THE NEW receiving station at Los Banos features a swinging boom for loading either rail cars or transport trucks, and a grab-roll cleaning screen (inset).

the ideas made available to the leading manufacturers of beet receiving equipment.

The most recent commercial application of these principles is the "Grabroll" screen made by the Silver Engineering Works of Denver. Two such screens have been purchased by Spreckels Sugar Company. One is installed at the Factory 1 truck receiving station at Spreckels; the other at the Los Banos rail receiving station.

Preliminary tests indicate that these Grabroll screens are far more effective in the removal of trash and clods than any screens hitherto developed. Exhaustive tests are being run on their efficiency, and if they prove to be as effective as early tests indicate, they will be purchased for installation at other receiving stations.

The growth in size of beet trucks has made it necessary to increase the scale deck length in all of Spreckels Sugar Company's important receiving stations. Sixty foot scales are now the rule rather than the exception. These sixty foot decks will accommodate maximum legal length vehicles, and will remove all limitations on the size of trucks used by growers and contract haulers.

To extend the receiving facilities of Spreckels Sugar Company to areas not served by the railroads, the unusual procedure of erecting receiving stations to deliver exclusively to highway transport trucks was initiated by Spreckels Sugar Company in 1953. The first such station was located at Tudor, Sutter County. This season another transport truck receiving station has been built at West Sacramento. This station will provide receiving facilities for many growers hitherto delivering to the Argenta station.

Still another transport truck receiving station will take the place of the facility hitherto located on railside at Comstock, San Joaquin County. The location will be a few miles from the previous station, but will dispense with rail service and substitute transport trucks entirely.

Some of the receiving stations in the Salinas and Santa Clara Valleys have been rebuilt to deliver beets to transport trucks as well as to rail cars—an aid to smoother harvest at Spreckels' receiving stations in the Central Valleys.

TOP RECOVERY

(Continued from Page 34)

only 9 tons of chopped leaves. However, 9 tons of leafy material for ensilage per acre can hardly be passed over lightly.

It is possible that the late harvest period recently introduced by Spreckels to Kern county will be of great importance to successful top recovery. It will offer an opportunity for top harvesting in climatic conditions never before possible in this area.

The proper combination of farmer, equipment and beet tops seems finally at hand and surely Kern county farmers will once more show the way.

ELECTRICAL ACCOUNTING

(Continued from Page 35)

The cards are then sorted on the **sorting machine** by contract number and receiving station at the rate of 650 cards per minute.

As a further check, the cards are balanced on the **accounting machine** by District, Factory and Station to a predetermined control total of first net pounds.

At this point the cards are merged with the summary cards which contain the "to date" totals of first net pounds, clean beet pounds, and sugar pounds for each contract. This is performed on the **collator machine** at a rate of 260 cards per minute.

Both cards are then fed into the accounting machine where they are listed on the "Growers Delivery Record" at the rate of 80 cards per minute. Besides listing, this machine prints the daily total of deliveries and a new "to date" total for each contract. Simultaneously a new summary card is prepared which is ready to be merged with the following day's individual load cards.

By using the IBM electrical accounting system at a single centralized office (San Francisco) we believe that we have achieved the maximum speed and accuracy of the accounting procedure which converts the information on scale-beam and analysis tickets into the grower's delivery record, which reveals the actual pounds of sugar delivered.

For a description of sampling and analysis procedure, reference is made to "Sugar Beet Sampling Determines Payments to Growers," Spreckels Sugar Beet Bulletin, September-October, 1951 (page 38).

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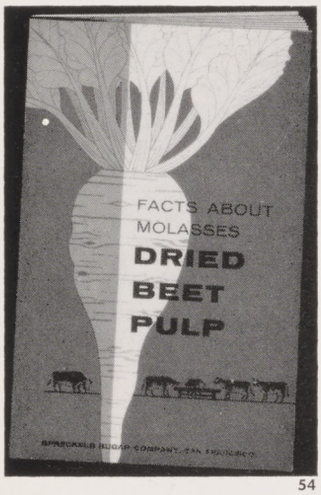
WEST SACRAMENTO is the site of a new receiving station built for exclusive delivery to transport trucks.

NEW CIRCULARS TELL ABOUT SUGAR BEET BY-PRODUCT FEEDING



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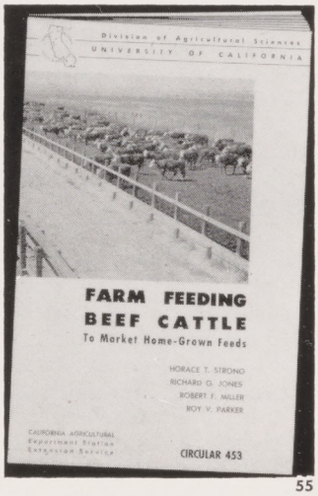
SPRECKELS SUGAR COMPANY has issued a new circular, "Facts About Molasses Dried Beet Pulp." This is a comprehensive twelve-page leaflet which should be of interest to everyone feeding this important sugar beet by-product to dairy cattle, beef cattle or sheep.

Subject headings include:

Value By Analysis
Value By Feeding Tests
Bulk
Palatability
Moisture Absorption
Dried Beet Pulp as a Beef Cattle Feed
Dried Beet Pulp as a Dairy Cattle Feed
Dried Beet Pulp for Sheep
Summary



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The University of California Extension Service has issued Circular No. 453 entitled "Farm Feeding Beef Cattle to Market Home Grown Feeds."

This circular presents an important slant on utilizing home grown feeds, many of which may be crop residues hitherto wasted, yet capable of affording a considerable income if properly fed.

Chapter- and Sub-headings are:

FEEDS AND FEEDING
- The advantages of a farm feed lot
- Advance planting is important
- Preparation of feeds
- Getting cattle on full feed

BUYING AND MARKETING
- Where to buy
- What age and weight to buy
- What grades to buy
- Required margins for feeder cattle
- Marketing channels
- Sources of market information

EQUIPMENT
- Desirable equipment for a farm feed lot
- Equipment for feed preparation
- Storage facilities
- Feeding methods

MERCHANDISING SPRECKELS NEW SUGAR PACKAGES AND PRODUCTS

By WILLIAM H. OTTEY
Vice President in Charge of Sales
Spreckels Sugar Company

IN THE MARCH - APRIL issue of the Spreckels Sugar Beet Bulletin we told you about our new sugar packages in bright, kitchen-lovely colors, and our new products—extra fluffy, 50% finer, Spreckels Powdered Sugar and Instant Superfine, the fast dissolving sugar.

We are now very happy to report to you that these new packages and new sugars have received wide recognition by national and regional trade papers.

Business magazines of wide renown including Good Packaging, Sales Management, Modern Packaging, Printers' Ink, Advertising Age and Western Advertising have printed articles on the new Spreckels Sugar packages. Grocery trade magazines such as Pacific Coast Review, Food Field Reporter, California Grocers Advocate, Southern California Grocers Journal, Washington Food Dealer, Oregon Merchant and Arizona Grocers have also devoted much space to the new Spreckels Sugar package story.

However, most gratifying are the many reports that well-established consumer sugar customers and new ones as well, have received the new Spreckels Sugar packages enthusiastically. We have received many merchandising success stories from the field like the one related and illustrated below; others appear on the opposite insert, and a reproduction of our October Sunset Magazine ad appears on the back of the insert. We will continue to back up our distribution with this sort of effective advertising.

Our new 10 pound pockets are now in distribution and very shortly the 5 pound and 2 pound pockets will appear in the "new look" design.

All this activity will add to your own reasons to—

BOOST and BUY SPRECKELS SUGAR!

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THRIFTIMART #19, BROOKHURST & CHAPMAN, GARDEN GROVE, CALIFORNIA. Marian Haun, Manager, states that this 110 case merchandising display of 1 pound Spreckels Superfine, Powdered, Light Brown and Dark Brown Sugar sold 84 cases in three weeks at the regular shelf price.

Merchandising Spreckels New Sugars and New Packages

Koplos Market, 7979 Mountain Blvd., Oakland, California. Mr. Mel Arch, owner

Freeway Market, 3 N. Kingston, San Mateo, California. Mr. Jerry Campagna, co-owner

Cole's Market, 5548 Woodruff, Long Beach, California. Thomas Lyng, Store Manager

Nick's Pick & Pay It, 6500 Sixth, N.W., Seattle, Wash. Mr. Jerry Horne, Manager

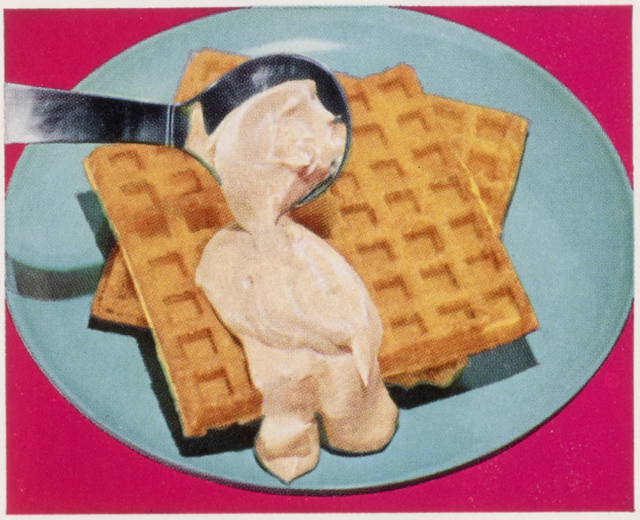
Woodyard Bros., Portland, Oregon. Mr. Tom Woodyard, manager

Bi-Rite Market, 195 Scotia St., San Francisco, California. Mr. Jesse A. Bell and Mr. William Sordano, co-owners

Fastest, fluffiest frosting ever— and 3 never-before ways to enjoy it!

If you've always thought frostings were just for cakes, you're in for a wonderful surprise! Here's a frosting that's so much creamier-tasting, yet so inexpensive with Spreckels new, 50%-finer Powdered Sugar, you'll want to try these three brand-new ways to enjoy it — morning, noon and night! All you do is whip up Spreckels Quick 'N Easy Fluffy Frosting (speedy recipe's below). Then keep it handy in the refrigerator, ready any time for these quick, delicious treats!

How to make Spreckels Quick 'N Easy Fluffy Frosting . . . in just one step! Combine 1 package Spreckels Powdered Sugar, ¼ teaspoon salt, ⅓ cup very soft butter or margarine, ⅓ cup milk, 2 teaspoons vanilla. Beat *1 minute* with mixer or 2 to 4 minutes by hand with wooden spoon. Makes 1¾ cups.



Maple Topping for Pancakes or Waffles. Bright new way to start each day — and wonderfully easy, too! Just add 1 teaspoon maple flavoring to 1 cup Quick 'N Easy Fluffy Frosting. Spread on steaming hot pancakes or waffles . . . hurry 'em to the table . . . and get set to serve up seconds!

Lemon-Frosted Pastries. Quick dessert that looks, tastes like French Pastry! Roll 2-crust pie recipe thin, prick, and cut into 24 oblongs 2″x4″. Bake until light brown. Cool. Add ½ teaspoon lemon extract to 1 cup Quick 'N Easy Fluffy Frosting. Spread on oblongs, pile 3 together. Makes 8.

Frosted Gingies. Perfect lunch or after-school treat! Just add ½ cup raisins to your favorite gingerbread mix. Spread thin in pan 10″x15″x1″ and bake. Cool. Mound Quick 'N Easy Fluffy Frosting generously on top. (For extra fun, shower with gay candy sparkles.) Makes 2½ dozen bars.

And remember, you can't buy a better Granulated Sugar than SPRECKELS . . . in 1-lb. cartons and extra-thrifty 2, 5, 10, and 25-lb. bags.

Westerners are sweet on Spreckels Sugar!

This ad to appear in the October Sunset Magazine

U. C. DAVIS AGRONOMY FIELD DAY DISPLAYS SUGAR BEET RESEARCH

THE ANNUAL Agronomy Field Day at the Davis campus of the University of California took place on September 7th. Special emphasis was placed on certain crops — sugar beets, sorghums, soybeans, and cover crops.

The sugar beet demonstrations were made by Dr. R. F. Loomis, Research Specialist in Sugar Beets, and R. C. Pearl, Extension Sugar Beet Specialist.

Over two hundred visiting farmers and agricultural specialists from processing companies attended the field demonstrations. Mr. Pearl highlighted the sugar beet research program conducted jointly by the agronomy department and extension division. This program is conducted in accordance with suggestions from the California Beet Growers Association, and the beet sugar processors of California. Several plots were examined on which hill planting of sugar beets had been investigated and upon which cost studies had revealed the possibility of important savings in labor costs by this method of planting.

Weed control, nutrition, and irrigation of sugar beets are currently being studied and results were demonstrated in the plots.

1957 ACREAGE ALLOTMENTS ANNOUNCED

The U. S. Department of Agriculture on September 25 announced the national acreage allotment for 1957 crop sugar beets. The national allotment is 885,000 acres as compared to 850,000 in 1956 and 1955. California's allotment for 1957 will be 192,341 acres, up some 9,800 acres from 1956. These increases in allotments are due to the operation of the new sugar act, which took affect during 1956 and allows our industry to grow with the increased demands for sugar.

Deadlines for growers to file requests for 1957 acreage in northern California has been set for October 26, 1956. We urge all growers who desire acreage for 1957 to contact their county A.S.C. Office as soon as possible

The University of California sugar beet program is far-reaching. The work is being done throughout the sugar beet growing areas of the state, assisted by sugar companies and by farm advisors in cooperation with local farmers.

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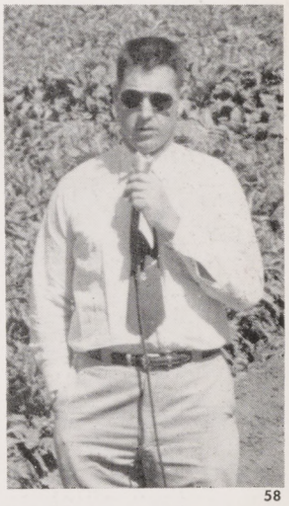
ROBERT C. PEARL conducted the tour of sugar beet plots.

DR. R. F. LOOMIS explained the theory of hill-drop planting.

OVER 200 interested spectators viewed the sugar beet plots, which include results of selective weed sprays, hill-drop planting and other innovations.



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CALIFORNIA BEET SUGAR SALES SHOW INCREASE

By WILLIAM H. OTTEY
Vice President, in Charge of Sales
Spreckels Sugar Company

THE BAR CHART which we have featured for many years on this page of the Sugar Beet Bulletin contains good news for all of us. During the 1955-56 crop year more beet sugar has been sold in California than in any of the last five crop years.

Looking to the future we can see even better news due to the dynamic growth of the West. California, leading the West in growth, will have more sugar-hungry people. By 1960 sugar consumption in our State will rise an estimated 17% to 20%.

The growth of the California market for California produced sugar is only part of the story. There is a growing demand for sugar in our neighboring Western states, and we have established a profitable market for our sugar in those states. Our production in excess of the amount California now absorbs insures that we can maintain our position in these other states. And, this "extra" sugar is a further guarantee that we can grow with our most profitable market—California.

What does all this mean to California's beet growers and processors?

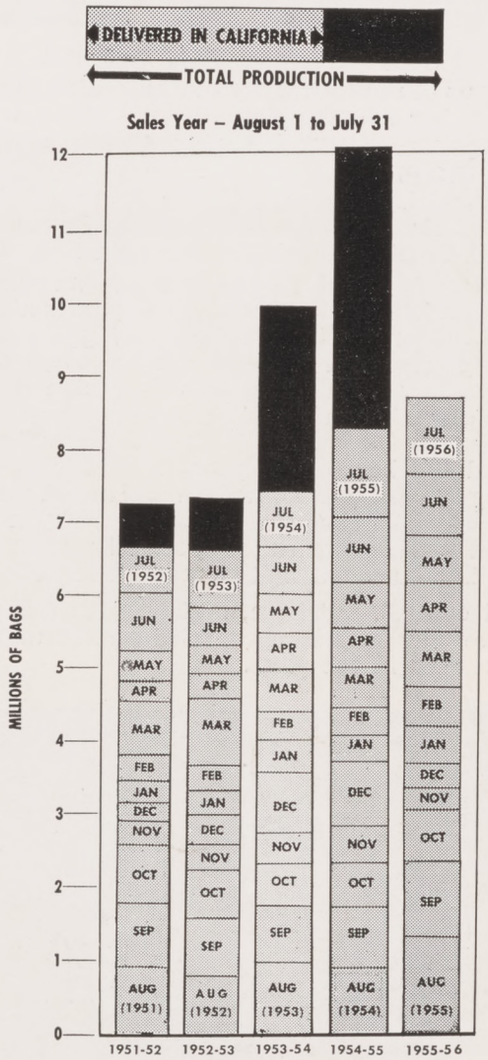
If the California marketings of beet sugar merely keep pace with **the growth in the home market,** there will be in 1960 at least 9,600,000 bags of beet sugar delivered in the State. Only twice in the last five years has this figure been exceeded by our State production. On the average, about 9,300,000 bags of sugar have been produced during the last five crop years—a quantity slightly below the actual 1955-56 crop production. This 1960 sales forecast of expanded beet acreage and production, heralded by the revised Sugar Act, must be made real if we are to maintain our market for beet sugar in the State.

California—our home—is also our vital market. It holds great future promise for you as growers and ourselves as processors.

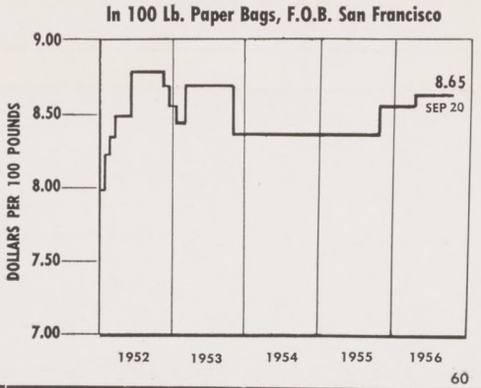
Spreckels Sugar Co. has painstakingly wooed the market **within** California for sugar made from your beets by acquiring modern equipment to provide top service to liquid and bulk sugar users; by constantly improving product and packages offered to consumers through grocery channels; by developing new and improved products for industrial users; and by modern, intelligent use of advertising, merchandising and manpower in its sales effort.

You can materially help us realize the mutual benefits of increased California sales: first, by maintaining acreages up to the limit permitted by the proportionate shares programs; and second, by always using Spreckels products in your home and in your labor camps, and by encouraging your friends, neighbors, and relatives to buy Spreckels sugar.

PRODUCTION AND DELIVERIES OF BEET SUGAR IN CALIFORNIA



QUOTED PRICE OF BEET GRANULATED SUGAR



The SPRECKELS SUGAR BEET BULLETIN is issued bi-monthly by the Agricultural Department of the Spreckels Sugar Company as a service to its growers.
Mention of specific methods, devices and implements does not constitute an endorsement by the Company.
All photographs by the editor unless otherwise indicated.
AUSTIN ARMER, Editor SPRECKELS SUGAR COMPANY WOODLAND, CALIFORNIA

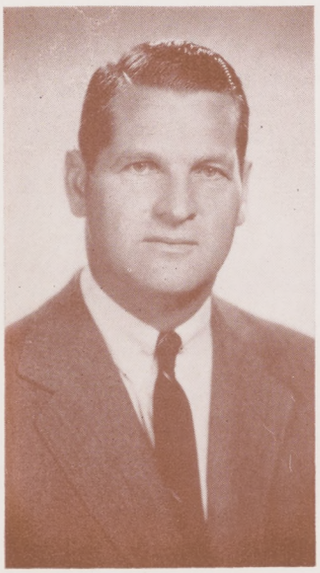
SPRECKELS SUGAR BEET BULLETIN

OCTOBER, 1956

OPEN HOUSE SPECIAL

More than 1600 people joined us at the Open House party at Spreckels on September 22. We hope that you were one of them.

A Word From Charles de Bretteville



IT WAS THE PRESENCE of so many of you at the Spreckels Open House that made the event such a happy success. Let me thank each of you personally for coming and for participating so enthusiastically in the day's festivities. I am particularly grateful for your interested response to our contest for the biggest sugar beet. I hope you enjoyed the party as much as we enjoyed having you with us.

We appreciate the opportunities that these get-togethers afford, not only to have a pleasant time with you, our neighbors, but also to demonstrate that we are striving, for our mutual benefit, to keep the company progressive and growth-minded.

"Grow with Spreckels" is more than a slogan. It is a way of saying that we constantly seek your interest in growing sugar beets, and especially in growing beets for Spreckels, and that we try to make it increasingly worthwhile for both of us to do business together.

That is the real significance of the recently-completed improvements, such as the new automatic centrifugal station shown below, which those of you who went through the factory saw. By the way, these improvements bring to more than $5,500,000 the sum that has been spent on new equipment and facilities at our Spreckels factory since 1948.

Making it more attractive for growers to be Spreckels growers is also the reason for the extensive research that we carry on year in and year out — in plant breeding, in crop rotation, in nematode and insect control, in new techniques of planting, thinning and harvesting. These activities are conducted with the aim of enabling you to get increased tonnage, better sugar content and more profit from your sugar beets.

In our mutual interest, too — for your profit and ours — we have undertaken, as you may have noticed, progressive selling campaigns to gain the support of more and more retail merchants and housewives for Spreckels sugar made from your sugar beets. We urge your cooperation in these efforts — by insisting on beet sugar where you shop and urging your friends and neighbors to do likewise.

At our open house held in 1952 I remarked that Spreckels has been making sugar from beets grown by three generations in this area — by you, by your fathers, and by your grandfathers. This, I assure you, is a great incentive to us to continue to work with you. And, we are looking forward to mutually pleasant relations with new generations of Spreckels growers.

Larger beet crops benefit all of us. They help you; they help the company; they help the community. Additional acres of beets harvested and processed locally mean more money paid out in wages that go into purchases at local business establishments

THIS IS THE NEW centrifugal station at the Spreckels factory near Salinas. Operation is fully automatic—the machines were in capacity operation when these photos were taken—yet not a man is in sight.

and accordingly benefit the economic life of the communities in which you live. More sugar beets mean more county taxes paid by the company, money that can be used for worthwhile civic, social, and educational projects in the area. Truly, there is a community of interest in big sugar beet crops shared by you, by Speckels, and by everyone who lives in this area.

Together we are building for the future of the Salinas Valley and of the West. We have unbounded faith in the potentials of this region. Our aim is to continue efficient and profitable operation in order to provide good returns to Spreckels growers, good jobs for employees, good returns for the company, and to fulfill our obligation as a good corporate citizen.

Again, my thanks for your interest and cooperation.

Sincerely yours,

Charles de Bretteville
President,
Spreckels Sugar Company.

LIQUID SUGAR is hauled in these big tank trucks. One of them was on display at the Open House along with one of the bulk sugar trucks.

TRUCK TRANSPORT of sugar beets to supplement railroad delivery was initiated at Spreckels this year. These transports unload at their own receiving station, and in no way interfere with growers' truck deliveries.

GEORGE WRIGHT, Salinas District Manager, was host to more than 1600 guests who toured the factory and enjoyed the entertainment in the big sugar warehouse.

THE BIG BEET contest drew many entries—all big. We are sorry we can't identify the young lady.

JACK MARINOVICH won first prize (a portable TV set) in the big beet contest with his 25 pound 2 ounce entry. Second prize (a pocket transistor radio) went to Tom Mine, whose entry weighed 24 pounds 3 ounces. Pete Vovojda's 22½ pound beet won third prize (a clock radio). Tied for fourth place (a year's supply of sugar) were Louis Scattini and Al Massera.

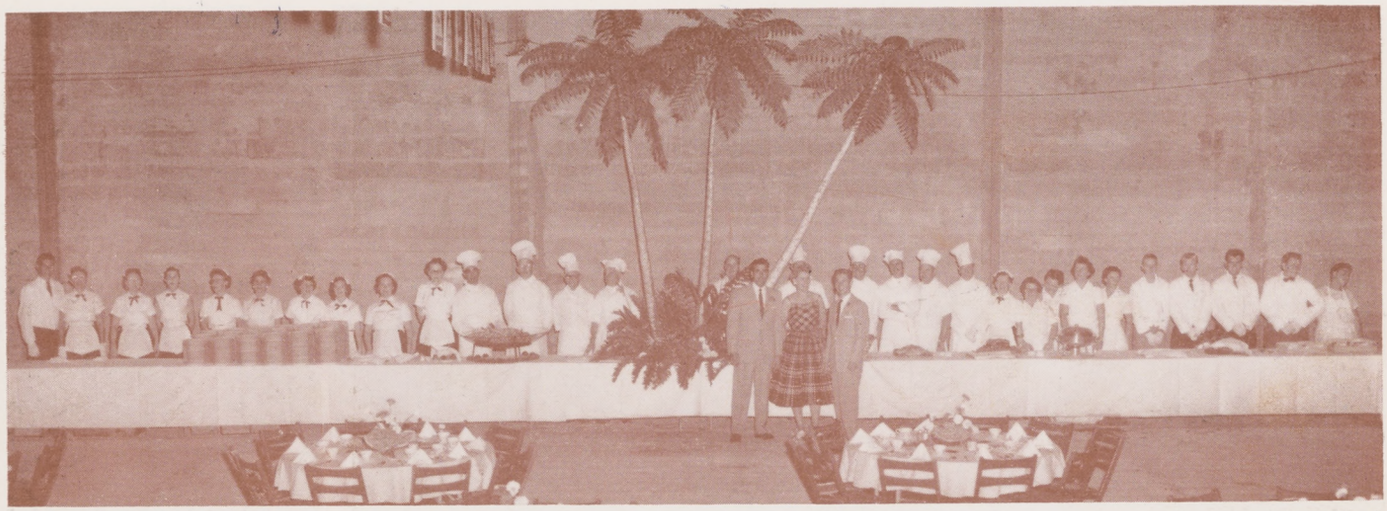
HERMAN MERTENS, Editorial Director of Western Beet Sugar Producers, Inc. spun the wheel of fortune and presented the winners with fancy cakes made by Nancy Haven (with Spreckels Sugar).

DR. RUSSELL T. JOHNSON presided at the Plant Breeding booth, where he demonstrated the many projects which lead to improved varieties of beet seed issued to Spreckels growers in the Salinas Valley and neighboring areas.

PLANT BREEDING headquarters of Spreckels Sugar Company are at the Spreckels factory. Here Dr. Johnson is bagging flower stalks as a step in developing a hybrid sugar beet variety. Hybrid varieties bred specially for the Salinas Valley show great promise.

HELEN JENSEN (left) and Phyllis Cuckuck are two of WBSP's "Nancy Havens." Their job is to demonstrate uses of beet sugar to the consuming public at women's gatherings, in schools and over the TV channels.

NEMATODE RESEARCH centers at Spreckels. Here Dr. Johnson stands between treated and untreated plots in a nematicide experiment.



"THE PARTY GIVERS" and their staff provided refreshments and supper to the more than 1600 guests.

JUST BEFORE the dinner bell. Half the floorspace in the big sugar warehouse was set aside for dining.

THE SPRECKELS Agricultural Staff includes the field superintendents and research specialists who serve you of the Salinas Area.

SPRECKELS SUGAR BEET BULLETIN

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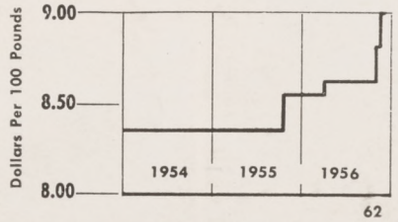
THE PREFERRED CROP

for growers in many areas is the sugar beet. There are good reasons — including recent substantial increases in sugar prices.



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Early planting offers advantages which will contribute substantially to a successful 1957 harvest — See page 42.

Vol. 20 NOVEMBER-DECEMBER, 1956 No. 6
PUBLISHED FOR CALIFORNIA SUGAR BEET GROWERS BY THE SPRECKELS SUGAR COMPANY

ADVANTAGES OF EARLY PLANTING FOR EARLY HARVEST

By DR. RUSSELL T. JOHNSON*
and LAUREN BURTCH**

SUGAR BEETS THRIVE in the temperate regions of the world. Here in California these regions are represented by the coastal valleys and northern central valley.

The long growing season in California is, to some extent, responsible for the large yields of sugar beets which on the average exceed those of any other area in the United States, Further, we in California are able to grow beets under a far wider range of climatic conditions than exist elsewhere in the country. These conditions include extremely hot summers and temperate winters (such as are typical of the Imperial, San Joaquin and lower Sacramento Valleys).

The wide range of climatic adaptability of sugar beets gives California growers a versatility in planting and harvest dates not to be duplicated anywhere else in the United States. But it also brings disadvantages to growers and processors because it limits the storing or piling of sugar beets to the cool season of the year—a period which is often too wet for harvesting the crop. Since beets can be harvested during most of the fall harvest season only at the rate at which the factories can slice them, it means that delivery quotas must be imposed over a portion of the growing season so as to balance beet deliveries with factory processing capacity. Therefore, as a matter of necessity, a large proportion of California sugar beets must be harvested either earlier or later than October—and October is the month during which most growers would prefer to harvest their sugar beets.

Spreckels Sugar Company has pioneered several practices which have helped to improve the harvest schedule. These include:

1. Improved factory and receiving facilities.
2. Spring harvest of overwintered beets.
3. The use of transport trucks to supplement railroad transportation.
4. The practice of extremely late fall harvests in the Southern San Joaquin Valley.

All of these practices have helped to improve the harvest picture, but there is still a good deal more that can be done. That is to harvest the larger proportion of the acreage in August than has been the practice in recent years, and to choose planting dates for those areas most suitable to early harvest.

While the early planting of sugar beets intended for early harvest is one step which growers in certain areas may take in the direction of relieving the pressure of delivery quotas at harvest time, there are several other advantages that may be derived from early planting.

IRRIGATION ECONOMIES

In many cases it is possible to have the beets up and thinned before it becomes necessary for any irrigation other than natural rainfall. This may permit a considerable saving in water cost. Further, there are some beet growing areas where the salt content of the ground is high, and where it is sometimes difficult to get a stand of beets by applying irrigation water for germination because subsequent evaporation concentrates the salt in the tops of the beds where the beet seedlings are damaged as they emerge. On this type of soil it is desirable to plant the beets at a time when intermittent rains are falling. Thus the salt may be kept below the surface until the beets are well established.

There are good indications that if water is limited, the best use of this water can be obtained by getting the crop off to a good start and keeping it going full speed until harvest. Even if the harvest is early it is better to apply the water often enough to prevent suffering, rather than to spread the same amount of water over a long season. The latter practice will cause the beets to wilt or dry out between irrigations, with marked reduction in yield.

*Director of Agricultural Research, Spreckels Sugar Company.
** Agronomist, Spreckels Sugar Company.

AUGUST OCTOBER

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THE SAME beet field, photographed from the same spot, in August and in October. Early harvest would have eliminated the weed problem.

REDUCED THINNING COSTS

In certain areas all the beets are often ready to thin at the same time, thus causing a temporary labor problem. Early planting can relieve this situation considerably. While it is true that beets planted a month apart in the early spring will not be ready to thin a month apart, it is nevertheless true that the earlier planted beets will be ready to thin enough earlier so that it may prevent a delay in getting labor at a critical time. It should also be mentioned that if thinning can be done early in the season, beets are not growing so rapidly as they may a month later, and this permits a more leisurely programming of the thinning in order to prevent the beets from getting too large before the thinning job is finished. Finally, labor may be more plentiful and less costly early in the season.

WEED CONTROL

Some of the most serious weed problems in sugar beet fields develop late in the fall. This is particularly true of some of the tougher weeds like mallow and pigweed, but most particularly is it true of watergrass. Under severe watergrass conditions early planting has distinct advantages because the beets may become well established before the watergrass can germinate. Watergrass becomes most serious on pre-thinned beets planted in April and May and on crops that are laid by in June. Seldom do we see watergrass conditions developing on early planted beets that have had a good stand earlier than mid-July or August. By harvesting in August, the watergrass problem can be completely dodged, even though watergrass has germinated during some of the last irrigations.

DISEASES AND PESTS

In cases where certain diseases and pests are a problem, early planting is of tremendous advantage. Probably the most striking example of this is in land that is infested with sugar beet nematode. Much of the beet growing land in the Salinas District is infested with sugar beet nematode. In spite of this, however, very excellent tonnages are harvested in this area. Rotations with non-host crops help considerably in keeping down the population of this pest, but equally important in obtaining the good crops is the fact that they are planted early. Sugar beets are capable of germinating and making some growth at temperatures lower than those at which the sugar beet nematode become active. Therefore, if beets emerge and have become well established before the nematodes become active, they stand a much better chance of developing into a satisfactory crop than if the nematodes are active and ready to parasitize the crop as soon as it germinates. To some extent, the same is true of root knot nematode. Each year growers are forced to harvest fields infested with root knot nematode earlier than they had anticipated because the affected spots in the fields are enlarging so rapidly. In cases where there is a known root knot nematode infestation, why not plan on harvesting early by planting early?

In areas where curly top is a threat to sugar beets, early planting is certainly advantageous. Some of our varieties have a high degree of tolerance which we call resistance. These varieties are the ones we use in those areas subject to invasion by the leaf hopper carrying the curly top virus. Even these varieties can be damaged somewhat by curly top if the leaf hoppers arrive while the beets are still in the small seedling stage. However, these beets gain resistance with size, so that beets which are larger at the time the leaf hoppers move into the fields are not so appreciably damaged.

In the Sacramento Valley and Delta regions, Southern Sclerotium Rot is on the increase. This disease is caused by a fungus, Sclerotium Rolfsii, that developes in moist soils at moderate and high temperatures. Sclerotium symptoms appear usually in late June or July and spreads rapidly that late harvest is impossible. If this disease is expected, the field can be sampled and tested to predict the probable loss before planting. If the expected loss is slight and the field is planted, early planting and early harvest provide good insurance for preventing a late summer build up with consequent yield reductions.

We hope that this article has pointed out some of the difficulties that arise under our California conditions, which prohibit the piling of beets to any large extent, and to describe some things that can and have been done about it. Early planting with a view toward early harvest appears to be one way of easing the problem and at the same time producing some real advantages under many conditions.

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EARLY PLANTING contributes to solving the field labor problem. Thinning and hoeing can be done while labor is still plentiful.

MY GROWERS LIKE TO GROW BEETS

By STUART S. ANDERSON
Field Superintendent, Spreckels Sugar Company

WHY DO MY GROWERS like to grow sugar beets? If this question were asked of each grower in the area, every answer might include one or all of the following factors; age of the grower, type of soil, financing, size of the farm unit and risk.

The area being referred to is mainly from Lockeford south to Manteca, with Jacktone Road as its backbone. It is composed mostly of three soil types, sandy loam on the north, clay loam midway and adobe clay on the south.

The growers in this area are still young men who are just establishing themselves as good, stable farmers. Sugar beets were among the first crops these people grew, and they have continued to be a fine crop to include in a farming program.

When a young man decides to venture into farming, one of the questions he might ask himself is, "What crops can I grow with a minimum of specialized equipment, a minimum of risk and above all one that can be easily financed?" For many, the answer was sugar beets.

The only specialized equipment needed for sugar beets is a harvester, and that isn't essential because there are many custom harvester operators who will harvest and haul the crop for a nominal rate. At the present time about sixty percent of the acreage is harvested by this type of operator.

Risk is at a minimum once the crop is up, and has reasonable care. For this reason financing is no problem with both company and finance organizations. In fact, some financial agencies prefer an acreage of sugar beets in a farming unit they are financing.

The size of the farm unit is relatively small, making it possible for the grower himself to do most of the work. This holds his overhead costs to a minimum and also promotes better care to the crop.

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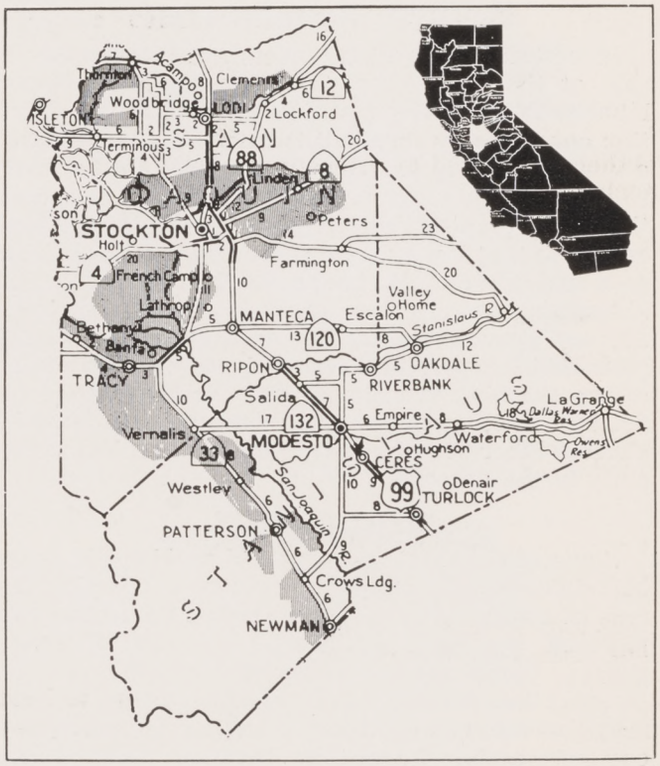
SUGAR BEETS are the favorite crop of growers in San Joaquin County from Manteca North to Lockeford.



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SHADED AREAS show where beets are grown in the Manteca factory district.

The growers in the sandy loam soils sometimes plant a crop of spinach or early peas; follow with sugar beets; then beans the next year, thus making full use of this productive land.

In the clay loam soils where a wide variety of row crops and orchard crops are grown, sugar beets fit well into a crop rotation whether they are harvested in the fall or spring.

During the past six or seven years there has been a tremendous amount of crop land development in the adobe clay type soil, and more is still being developed. It has been only recently that row crops have been grown in this area. There were many cultural problems to solve before these crops could be successfully grown, but persistance payed off, and now some of the finest yields of sugar beets are grown in this soil.

The overall area enjoys a better-than-average yield, and many growers have found that, without any conflict in their crop rotation, sugar beets do extremely well by over-wintering them. Many growers have made spring harvest a part of their planned farming program.

Fertile soil, good farming and a better-than-average yield all help to produce a profitable sugar beet crop that fits well into a cropping program of farm units in this area. Coupled with the recent increase in sugar prices, these factors which make sugar beets so popular with my growers should have a strong appeal to growers in other areas.

UNIVERSITY MAKES STATE-WIDE STUDY OF SOIL COMPACTION

SOIL COMPACTION is a problem especially acute in California, where naturally tight soils are still further compacted by intensive cropping and all-out mechanization.

A master project will be carried out by the Departments of Soils and Plant Nutrition, Irrigation, Agricultural Engineering, Agronomy, Vegetable Crops, Pomology, and Viticulture. The Agricultural Extension Service is also actively participating.

Excerpts from the project outline follow:

REASONS FOR UNDERTAKING WORK:

The poor physical condition of soils noted is a statewide problem and is not associated with a particular soil class or series. Current conservative estimates indicate that about 2 million acres of land are affected economically through loss of yield or increased operation expense, with another 2 million acres approaching this condition.

Concern over unfavorable soil structure arises from several causes. First, under an irrigated agriculture, the farmer's attention is drawn to this problem by a decreasing rate of water penetration. In many areas the water penetration rates have become so slow that crop production is seriously affected and irrigation costs decidedly increased. Second, improved varieties, pest control, and fertilization programs have increased yields to the point where poor physical condition obtains increased stature as a limiting factor. Third, the physical condition of soils actually is, on the average, deteriorating more rapidly in recent years. Finally, the increased awareness of farmers to soil physical conditions could be due partly to a greater desire on their part for more efficient usage of an increasingly limited supply of irrigation water.

As specialization and intensification of cropping practices on farms continue to grow, the problem of soil compaction will undoubtedly become worse. The incidence of poor structure due to soil compaction as well as other causes forces farmers to devote more time and energy to seed-bed preparation. Additional tillage and heavy equipment are being used with increasing frequency in attempts to improve irrigation water penetration. This increased soil manipulation harms structure with the consequence that the development of poor physical condition in soils is self-perpetuating and self-accelerating. It seems likely that the more aggravated the structural deterioration becomes, the more costly will be its amelioration.

Proposals for amelioration, prevention or reduction of compaction need to be based on information derived from research on the causes, mechanisms, and effects of the process.

This research can be conducted more adequately as a joint effort of several departments within the experiment station, each contributing according to the talents and experience of its personnel.

OBJECTIVES:

1. Conduct a survey of soils in California where water penetration problems, root impedance, and tillage difficulties are encountered for the purpose of determining what factors are associated with these problems.
2. Develop and evaluate methods for characterizing soil physical conditions.
3. Establish instrumentation and techniques for evaluating the response of soils to loading.
4. Find methods for reducing soil deformability.
5. Investigate the response of soils to loads and find modifications in loading which cause the least soil deformation from cultural operations.
6. Evaluate soil amendments and crop residues in terms of their usefulness in the amelioration of impaired soil physical conditions.
7. Evaluate cropping systems as deterants of impaired physical conditions.
8. Investigate and evaluate tillage machinery and practices designed to prevent, reduce, and/or eliminate soil compaction.
9. Investigate and evaluate irrigation management systems designed to prevent, reduce, and/or eliminate soil compaction.
10. Investigate the possibility of improving water supply to plants in compacted or otherwise impervious soil by modifications in irrigation management.
11. Study water penetration into soils as a function of soil composition, structure, and compaction.
12. Ascertain the tolerance of various crop plants to impaired soil physical conditions.
13. Discover which crops, due to their tolerance of impaired soil structure, might be useful in reclamation of compacted soils.
14. Ascertain the physiological and morphological response of crop plants to soil compaction.
15. Study the influence of fertility and water management on the tolerance of crops to poor soil structure.
16. Study the interaction of soil microorganisms and soil structure, i.e., to study the composition of the microbial population in compacted soils and to determine the influence of this population and its products on soil structure.

PROGRESS IN PLANTING METHODS

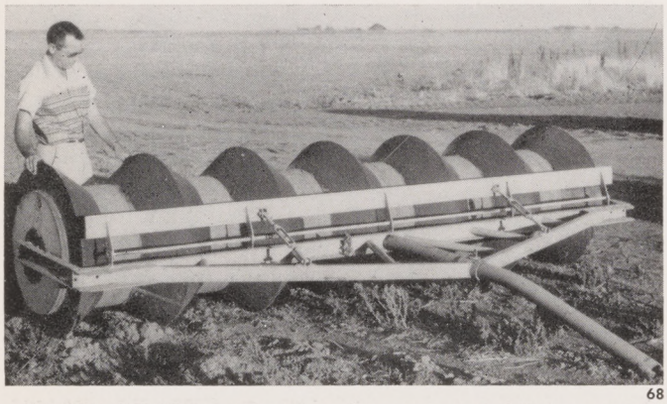
CARL BECKER, Spreckels Sugar Company grower near Davis, has planted his entire 1956 crop of 580 acres using 24 inch single beds. Earlier attempts to form beds on 24 inch centers were not successful because in cloddy sedimentary soils, the beds formed to these small demensions are insufficiently stable—clods fall into the furrows and partially fill them.

William Hodson, Spreckels Field Superintendent, reports that Carl Becker overcame this trouble by building a special roller which is used after listing and before planting. This roller performs two very important functions—it compacts the bottom of each furrow, crushing any clods which may have fallen in, and making a clear path for the irrigation water; it also levels the tops of all six beds over which it runs so that a firm seed bed is created, and a perfectly level and uniform working area is available for subsequent operations of thinning and cultivation. The twenty-seven ton yield achieved by Carl Becker is testimony to the success of this row spacing and planting system.

Gib Maurer, Spreckels Field Superintendent for the Grimes Area, reports that Spreckels grower John Stinchfield has built an interesting sled planter. This planter operates on six two-row beds, and makes use of the working parts of the International No. 44 beet planter.

Mr. Stinchfield elected to use the shoe type opener rather than the disk, since the shoe operates better in sticky soil, when seed is planted to moisture. But to further insure that the seed shall be firmly pressed into the moist soil, Mr. Stinchfield has installed rubber-tired wheels directly behind each furrow opener so that every seed is individually pressed into the bottom of the furrow before being covered.

Two new developments of interest to California sugar beet growers have been brought out by manufacturers of sugar beet planters.



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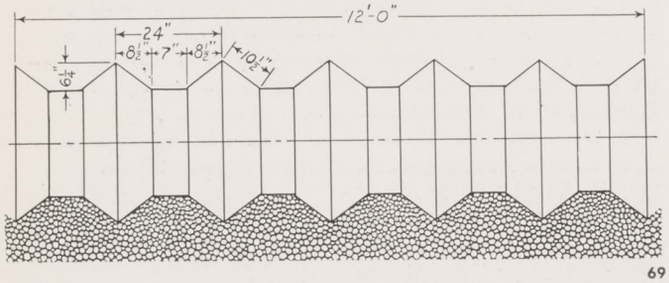
WILLIAM HODSON examines a useful new tool. Carl Becker uses this corrugated roller to firm the seed bed and clean the furrows of his 24-inch beds. (Dimensioned sketch below.)



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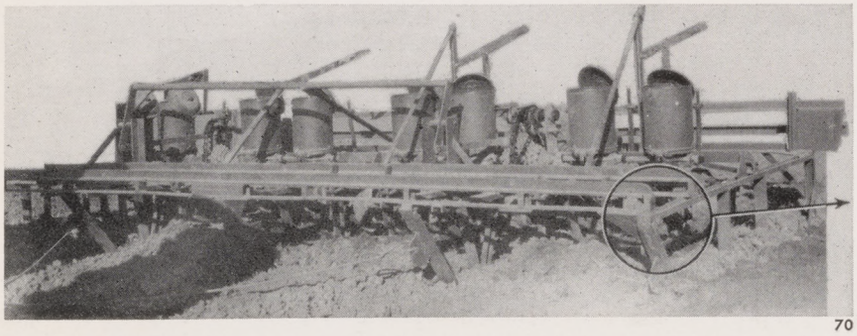
THE JOHN DEERE No. 70 Flexi-planter



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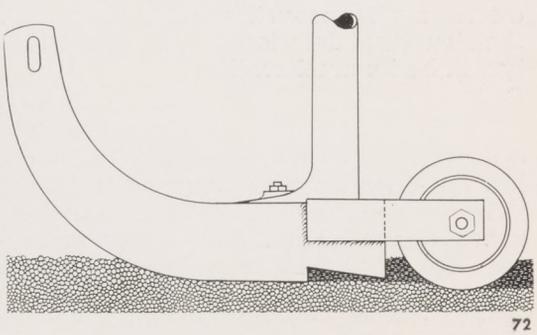

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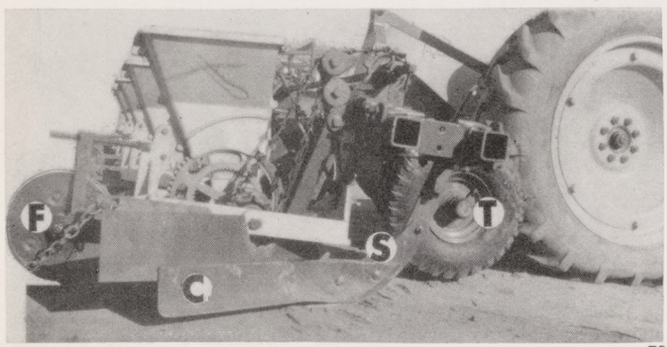
THE STINCHFIELD planter employs six International beet drill units, with furrow packer wheels added as shown in the sketch at right.

The new John Deere No. 70 FLEXI-PLANTER embodies the time proved principles of the Model 66 low drop sugar beet planter, but is available as a single tool bar mounted unit. Any number may be purchased for attachment to any square tool bar, either on a tractor or on a sled. The cut and descriptive captions explain in some detail the construction of the Number 70 Flexi-planter.

The Milton Planter is now available with a runner type opener, which they designate as a "sword" opener. When the sword opener is used, the disk is no longer in use, so that the drive for the seed wheel is made by a chain connected to a sprocket on the tractor axle.

The conversion from disk to sword opener may be had either from the factory (Harbison-Paine, Inc., Loveland, Colorado) or from Ed's Equipment, Shafter, California.



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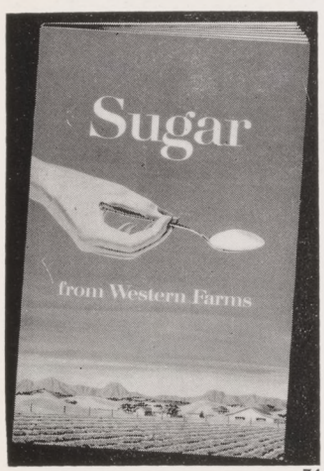
THE MILTON PLANTER is available for tool bar mounting, with "Sword" opener (s), furrow packer wheel (f), clod-pushers (c) and tool bar gage wheel (t).

NEW BOOKLET ON BEET SUGAR



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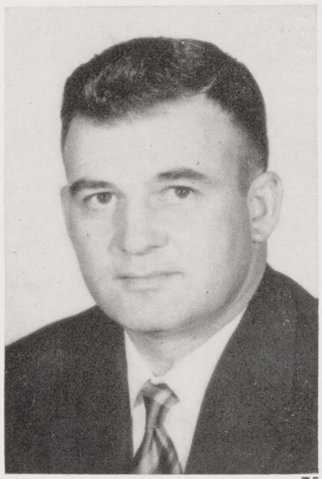
SPRECKELS SUGAR COMPANY has just revised "Sugar From Western Farms," a forty-eight page booklet describing in some detail the history of beet sugar, sugar beet agriculture, and the manufacture of beet sugar.

"Sugar From Western Farms" is abundantly illustrated with photographs and drawing, and has been carefully written and edited to insure accuracy of factual material. Its manner of presentation, however, is straight forward and especially suitable for classes in the elementary and intermediate schools.

Growers who are interested in learning the details of beet sugar manufacture are urged to write for a free copy of "Sugar From Western Farms." A note addressed to Spreckels Sugar Company, 2 Pine Street, San Francisco, California, will bring a copy by return mail.

AGRICULTURAL STAFF CHANGES AT SPRECKELS AND WOODLAND



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WALTER H. BUCKINGHAM

WALTER H. BUCKINGHAM, who has been Woodland District Agricultural Superintendent for Spreckels Sugar Company for the past six years, has been promoted to district manager of the Salinas district. He assumed his new duties on December 1.

Agricultural administration has been Mr. Buckingham's career since attending the University of California's College of Agriculture at Davis, except for his military service as a lieutenant in the U. S. Navy during World War II. He joined Spreckels' agricultural staff at Woodland in 1946 as a field superintendent. Two years later he was promoted to assistant agricultural superintendent, and was transferred to Bakersfield. He returned to Woodland as agricultural superintendent in 1950.

Mr. Buckingham has long been active in civic and business men's groups. He belongs to the Woodland Rotary Club and has served as president of the Flier's Club. Since 1954 he has been a Woodland City Councilman.

The position of Agricultural Superintendent at Woodland will be filled by Don Hefner, well-known field superintendent in the Dixon area.

A native of Oroville and a graduate of the University of California at Davis, Mr. Hefner joined Spreckels Sugar Company as a field superintendent in 1946, following four years service as an officer in the Air Force. From 1950 to 1953 he was a supervisor of farm loans for the Crocker-Anglo Bank in Sacramento. He rejoined Spreckels as a field superintendent in 1952, and has worked in the Dixon district since then.

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DON HEFNER

Mr. Hefner is camping chairman of the Yolo, Colusa and Solano Girl Scouts, and has contributed much time and effort toward improving Camp Timbertarn in the Sierras. He is also treasurer of the local Babe Ruth League and manages the Sanitary Dairy baseball team.

He and his wife, Ellora, and their four children live in Woodland, where they have resided since 1947.

LARGE WHEEL TYPE TRACTORS

GENERALLY SPEAKING, California farmers have considered that all field operations requiring more than thirty drawbar horsepower required track-type tractors. Since all of the heavy tillage and seedbed preparation operations for California field crops have heavy draft requirements, usually exceeding thirty drawbar horsepower, the track-type tractor has been used almost exclusively in this field.

However, a radically designed four wheel drive rubber tired tractor has now entered the heavy draft field and has met with considerable acceptance, particularly in the Salinas Valley. The Wagner Tractor, manufactured in Portland, Oregon, has been made available in three sizes, designated the TR6, TR9, and TR14.

Most popular in the Salinas Valley sugar beet and vegetable growing areas is the Model TR9 which has a drawbar horsepower of 78; drives through four 15.00x26 mud-cleat tires, and steers by the unique method of bending itself at its middle. This unusual steering system permits the use of two more or less standard truck-type double reduction rear axles, and eliminated driving through universal joints, as has hitherto been necessary for steering four wheel drive vehicles.

Both steering and brakes are hydraulically operated, and the provision of a ten speed transmission gives a maximum road speed of 25 miles per hour, along with a very wide range of field operating speeds.

The Wagner Model TR9 tractor has been used successfully for powering two-row Marbeet harvesters by Fanoe Brothers & Sons, John B. Silva & Son, and Christianson Brothers—all Spreckels growers. Some care is required in steering, since the 15 inch tires come pretty close to the beet rows and will displace beets unless steering is done with considerable accuracy.

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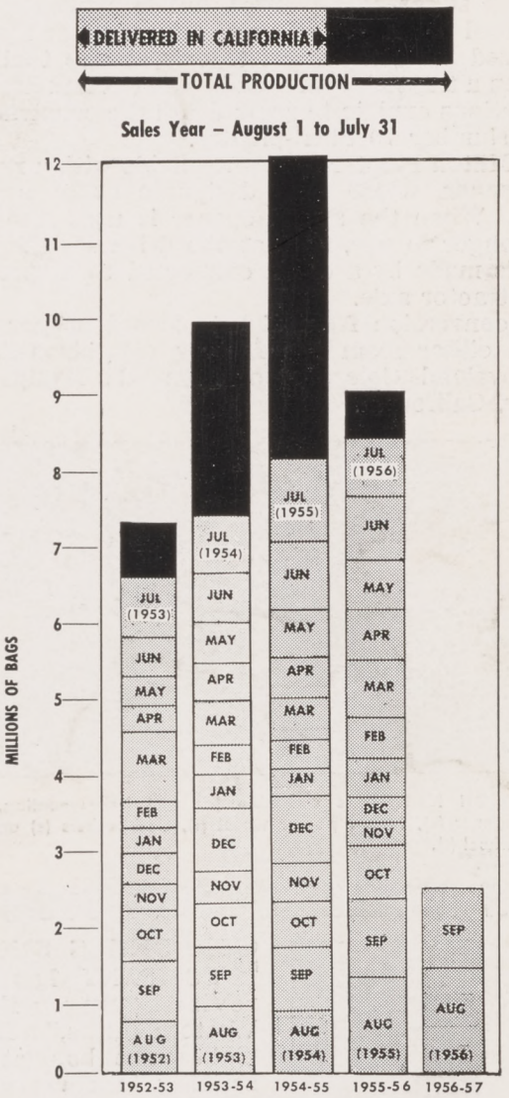
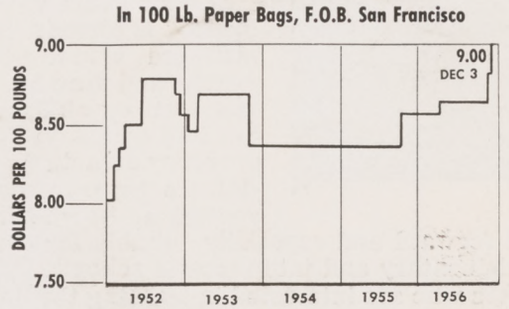
THE WAGNER TRACTOR has an 81 inch tread which fits in well with operations on 40 inch beds.

PRODUCTION AND DELIVERIES OF BEET SUGAR IN CALIFORNIA



QUOTED PRICE OF BEET GRANULATED SUGAR



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The SPRECKELS SUGAR BEET BULLETIN is issued bi-monthly by the Agricultural Department of the Spreckels Sugar Company as a service to its growers.
Mention of specific methods, devices and implements does not constitute an endorsement by the Company.
All photographs by the editor unless otherwise indicated.
AUSTIN ARMER, Editor SPRECKELS SUGAR COMPANY WOODLAND, CALIFORNIA

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